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GUEST EDITORIAL

BUILDING THE ARMY — COMBAT DEVELOPMENT

*Colonel M.J. Ward, CD
Director of Land Strategic Concepts*

I am very pleased to have been invited by the Managing Editor to address this issue of the Army Doctrine and Training Bulletin. This is an important journal which serves our primary professional interests and which offers a forum for critical thought and debate—both essential elements of our profession. My predecessors who have each held this spotlight have addressed issues of key concern to the Army and I in my turn intend to build on that foundation. My particular theme in this Guest Editorial will be to reinforce the fundamental requirement for a disciplined, long term, Combat Development Process (CD) in order to ensure that the Army will be equipped, trained and ready to meet the dynamic challenges of the future security environment.

WHY A COMBAT DEVELOPMENT PROCESS?

Professor Howard's prophetic words were uttered three days before the start of the *Yom Kippur War*, a conflict that very nearly resulted in a catastrophic defeat for Israel at the hands of the Arab coalition. A combat development process is required in order to ensure that an Army has the combat capability required to fight and win in conflict. This process should provide a detailed and rigorous method by which to develop and validate force structures. The resulting blueprint is not the endstate, but becomes the plan around which you create the force necessary to accomplish forecast military objectives. If resources become constrained, as they inevitably do, then the blueprint is the start point for the gap and risk analyses, determining which capabilities are most essential and what functionality can be achieved.

I am tempted to declare dogmatically that whatever doctrine the Armed Forces are working on now, they have got it wrong. I am also tempted to declare that it does not matter that they get it wrong. What does matter is their capacity to get it right quickly when the moment arrives. Still, it is the task of military science in an age of peace to prevent it from being too badly wrong.

**Sir Michael Howard
3 October 1973**

Combat Development is more than people discussing it around a table. Shallow opinion is worthless and in fact dangerous. Enthusiasts and amateurs may postulate wildly about the end of war and standing armies with no thought or detailed assessment to back them up. Others conduct force development from the merest analytical base and attempt to sell organization charts as force development with utterly no understanding as to how armed forces are designed and built, or the unique chemistry that is required to ensure that it can fight. When such half-baked ideas are privileged with any kind of attention they confuse and distract rather than contribute to enlightened analysis. Trained and experienced professionals, schooled in military art and science, are best prepared to perform this important work.

Another important reason to invest in combat development is to ensure that we maintain an appropriate level of operational and equipment readiness in the event that we are drawn into conflict on short notice. We have had to learn and re-learn this lesson several times in the last century. The deployment of the Ross Rifle in the First World War, the deployment of untrained and ill-equipped troops to Hong Kong at the beginning of the Second World War and our inability to commit troops in any timely fashion to Korea are all instances of our failure to maintain preparedness in an undefined and ambiguous environment.

THE FUTURE SECURITY ENVIRONMENT

As our recent history has shown conflict is not on the demise. Rather, the past 10 years have seen the eruption of numerous small and medium scale conflicts, that seek to establish a new order (or disorder) in various regions of the world. A Directorate of Land Strategic Concepts Study published in 1999 identified 33 conflicts around the world, ranging from obscure counterinsurgencies in Central Asia to protracted conflicts in Africa and more familiar ones in the Balkans. Our role as an armed force is to deter aggression and if that fails, to fight and win those wars vital to our national interests and security. If we are to continue to be relevant to Canada's needs we must focus on maintaining an understanding of how conflict will develop and how we can best contribute to the defeat of all potential enemies. Fundamental to this is a rational and consistent combat

development process that analyses the scope and threats inherent in the future security environment, develops capability requirements and experiments with concepts to achieve them. It sounds good in theory but...

HOW HAS COMBAT DEVELOPMENT WORKED IN THE PAST?

Although we are often our harshest critics, the Canadian Army has demonstrated both innovation and ingenuity in its force development processes in the past. During both the First and Second World Wars we developed highly sound doctrine for employment of ground manoeuvre forces and tactical air support. Flashes of brilliance have not been isolated to wartime but they have been far less obvious and consistent in peacetime. We therefore need a sustained effort to ensure that our long-term combat capability is resilient, flexible and responsive to emerging threats.

In DLSC Report No. 9905 entitled *An Identifiable Cult: The Evolution of Combat Development in the Canadian Army 1946-1965*, Dr Sean Maloney provided a detailed review of our post war initiatives to perpetuate a combat development process. At the cessation of hostilities in 1945 the Canadian Army demobilized at an unprecedented rate. The corps and divisions that had been formed less than five years before were no longer required – an understandable phenomenon. Concurrently the Army Staff hedged against the demobilization by establishing a combat development process that built on success achieved in war to adapt land forces and tactical air forces for evolving combat in the nuclear age. During the period 1945 to 1967 the Army CD process developed highly effective conceptual models for division and brigade-sized formations that we fully prepared to employ alongside our allies in Central Europe. This

delivered a combined arms formation and doctrine optimized for a non-linear, non-contiguous, extended battlespace. It involved not only conceptual modelling and seminar wargaming but also extended to live, field force experiments using brigade and division troops and formations.

Despite economies and efficiencies realized through integration of army, navy and air force headquarters and the combination of military and ministerial staffs, unification effectively scuttled momentum that had been developed in the combat development arena during the 1950s and 1960s.

Despite Cold War confrontation in Central Europe during the 1970s and 1980s a series of peripheral conflicts distracted the Army from exploring the future of conflict, future security environments and the potential force capabilities required to meet national security objectives. The CD process that was re-established in 1974 focussed on building major formations that combined an ideal set of combat capabilities. While an enviable model, the ultimate utility of the resulting Corps 86 and 96 formations was limited to training officers in our staff colleges and did not extend to our mobilization or acquisition plans. About this time mobilization ceased to play a role in combat development and organizational structure. Standing forces disregarded the responsibility to develop the military potential of the nation-in-arms that would be required in the event that another conflict occurred on a larger than imaginable scale or last for a more protracted period than that to which our standing regular army could respond. This was short-sighted and marked a critical failure to understand human nature and the complex forces that shape global society.

In the early 1990s we replaced the previous system with the Land Force Development Process, a renaissance

effort to create a working force development process that produced functioning field forces. This system was predicated on the basis of assigned secondary duties and was manned from the general staff matrix. It never achieved its original aim, and existed only temporarily until Land Force Command Headquarters moved to NDHQ and the staff effort secondarily assigned to the process was swallowed up in staff reductions.

In the meantime we have suffered a continuous decline in real combat capability. The loss of the 1st Canadian Division and 4 Canadian Mechanized Brigade Group have left a significant gap in our ability to sustain professional competence at the division and mechanized brigade group level. The biennial *Rendez-vous* series of exercises accomplished similar objectives for Canada-stationed troops but these are now a thing of the past. The reduction of brigade commanders to the rank of colonel and the loss of 1st Canadian Division Headquarters is significant now insofar as we no longer have Army general officers commanding field force formations with the operational focus that that carries. What impact will this have on our ability to conduct operations at the formation level at some uncertain point in the future? Will this degrade our professional focus on combat as the core capability requirement of the Army? I ask this because of the significant threat that these questions pose to our longterm viability as a multi-purpose, combat capable Army. Contrarily, will we default instead to the *gendarmerie* that Brigadier-General Macdonald warned of in his recent guest editorial¹.

I become concerned when I hear professional Army officers speak of the battle group-based Army, as though it were the maximum combat capability that this country might have to deploy. It suggests that there

are many among us who believe that our maximum commitment to future conflict will be no greater than what we currently commit to Peace Support Operations. This fails fundamentally to consider rising regional tensions around the world, the fact that major regional competitors seem not to have noticed that the Cold War (a Euro Centric concept only) has passed and that potential future adversaries continue to field large conventional military forces in addition to new and unconventional ones. In an era of increasing globalization, can we shelter ourselves geographically and still be safe from threats that will affect us asymmetrically? Far from arguing for a retention of the *status quo ante* – large standing conventionally armed forces – this calls for a fundamental analysis of all capability requirements and study as to how they can be met; to wit, a thorough and comprehensive combat development effort.

The enduring theme throughout the past 50 years has been an inability to maintain a continuous process that has produced fighting capable forces. Time and again we have established a process only to come short of implementing the results of the process in any fundamental way. Whenever we have entered a period of disruption or allowed ourselves to be distracted by current operations the CD focus has been the first effort to be sacrificed. The result is that we have not maintained a consistent approach and have not been able to maintain an evolutionary blueprint for the Army from which to evolve force structures and combat system capabilities. Most recently this has been exemplified by weapon and equipment system (Eryx, Griffon, Coyote and LAV III to name a few) acquisition undertaken without an validated operational requirement. This has extended to the fielding of equipment without the necessary doctrine or an understanding of how new capabilities will enhance combat

capability or integrate into combined arms formations.

HOW WILL WE FIX THE PROBLEM?

These problems are still with us but there may be light further down the tunnel. Since the creation of the Land Staff in Ottawa we have had the opportunity to redress the lack of a coherent CD process in the Army. In 1996 the new Army Staff evolved from the continental (G1-G6) to a functional staff system wherein primary institutional functions (Concepts, Doctrine, Training, Requirements etc) were assigned to new Directorates. Under this initiative the Directorate of Land Strategic Concepts became responsible to advise CLS on future Army requirements. The Directorate of Army Doctrine was charged with creating the entire new body of doctrine that defines how the Army will fight in the 21st Century. Responsibilities were also assigned to other directorates to ensure that a future army development plan existed to chart the course of combat and force development from the Army of Today (0-4 years) through the Army of Tomorrow (5-10 years) and out to the Army of the Future (11-25 years). Recently the finishing touches were put to the Army Strategic Planning Process which defines how the Army is conceived, designed, built and managed. Subsumed within this process are the milestone activities that provide for combat function audits and a disciplined combat development process. Assisted by operational research, science and technology, and an experimentation centre in Kingston we have the wherewithal to do conceptual development, identify alternative concepts to achieve new force capabilities and to test them scientifically before embarking on what may be radical but necessary force structure changes. The ISTAR Campaign Plan is a useful early

indicator of the fruit that could potentially be borne not only from the process and intellectual exercise but also the continuous engagement and participation of senior leaders.

This alone will not deliver a flexible, combat-capable Army. We are masters of process, but this crutch will not guarantee progress. These long-term analyses must be developed from concept through to fielding and not quickly discarded as forgotten studies. This is an activity that during its cycle must engage the entire Army leadership and create the framework within which we engage in professional debate and then put our ideas to the test. Now, in the year 2000, we have again a workable combat development process, but have we got it right? Will we exert the effort and discipline necessary to ensure that it actually serves its defined purpose? We won't know that until Canadian troops are put to the test on some future battlefield. As Professor Howard suggested over a quarter of a century ago however, even if we don't get it completely right, we will have been well served for at least having engaged in the effort. Our collective responsibility remains nevertheless to be ready and to field the best Army possible. We owe this no less to our country than to our soldiers who will be expected to go in harm's way.



ENDNOTE

- 1 The Army Doctrine and Training Bulletin, Vol 2, No. 4, Winter 1999.

FROM THE MANAGING EDITOR ...

Captain John R. Grodzinski, CD

WHO ARE WE?

Our army does not know itself. At least not well. Collectively, we have an awareness—and proudly so—of a distinguished record in the service of Canada. However outside of Vimy, the Normandy campaign and one or two other battles, we are painfully ignorant of our history. The same can be held for our understanding of how the Canadian Army evolved and how it has dealt with the problems and issues of the day. In the post Second World War era, where our army commenced active peacetime operations around the globe, our understanding of this period are dependant upon the memory of the oldest person consulted. Moreover we tend to study what other armies have done and are doing with little consideration of our experience. What we lack is a Canadian perspective on many issues—and by this I mean not how they were dealt with from the perspective of political policy—, rather how did the army deal with these issues? There are a number of questions the army tackled in the 1950s and 1960s, the understanding of which might give us a better perspective in dealing with modern problems. For example, how did Canada participate in NATO operational planning when our brigade was an integral part of 1 British Corps war plans? How did we influence these plans? How were the questions regarding the adoption of armoured personnel carriers handled? Or rocket-propelled, nuclear tipped

artillery? Why do we have service battalions? We take considerable time to study doctrinal and other trends of the American, British and other armies but we are less sure of those in our army. It must be acknowledged that some advancement has been made. The Directorate of Land Strategic Concepts has sponsored some work¹, but even more sponsored research, publication of reports and encouragement of further writings is necessary. Certainly an understanding of these issues will not solve today's problems, but it will help place them in some context. Indeed we may even learn that there is a *Canadian* way of doing this business.

PROCESS AS A STRATEGIC FACTOR

An American journal recently had an article titled "Infrastructure as a Strategic Factor", referring to the impact infrastructure has on the conduct and success of military operations. To this list could be added a new strategic factor from Canada: process. Before we do anything a process must be created. How is this issue going to be tackled? How can we determine and assess the impact of an issue across the board and what is the feedback loop? Certainly, how issues are managed is important but not an end in itself. Typically in a presentation we hear "before the issue is examined, let's take a look at the process..." The majority of the time remaining is then taken up detailing this process with no real discussion of the issue at hand. That

has become incidental. *The fun was in the process.* Rather than discussing strategy, doctrine or training, our lecturer's emphasis on process could have applied to determining what movie to see. Why is this so? Are we not prepared to discuss these topics? Is it caused by "management" colliding with "leadership" and allowing process to replace decision or an understanding of strategy, doctrine or whatever the issue may be? Can anyone out there help?

A New Feature—Tactical Problems

This issue of the Army Doctrine and Training Bulletin includes a new feature: Tactical Problems. Our resident tactician will regularly offer problems for readers to consider. You are invited to consider and debate them and if so inclined, provide solutions. Be careful though—they are exercises for the tactician and not the staff officer, so do not miss the point by looking for detail that you do not need. Eschew obfuscation.

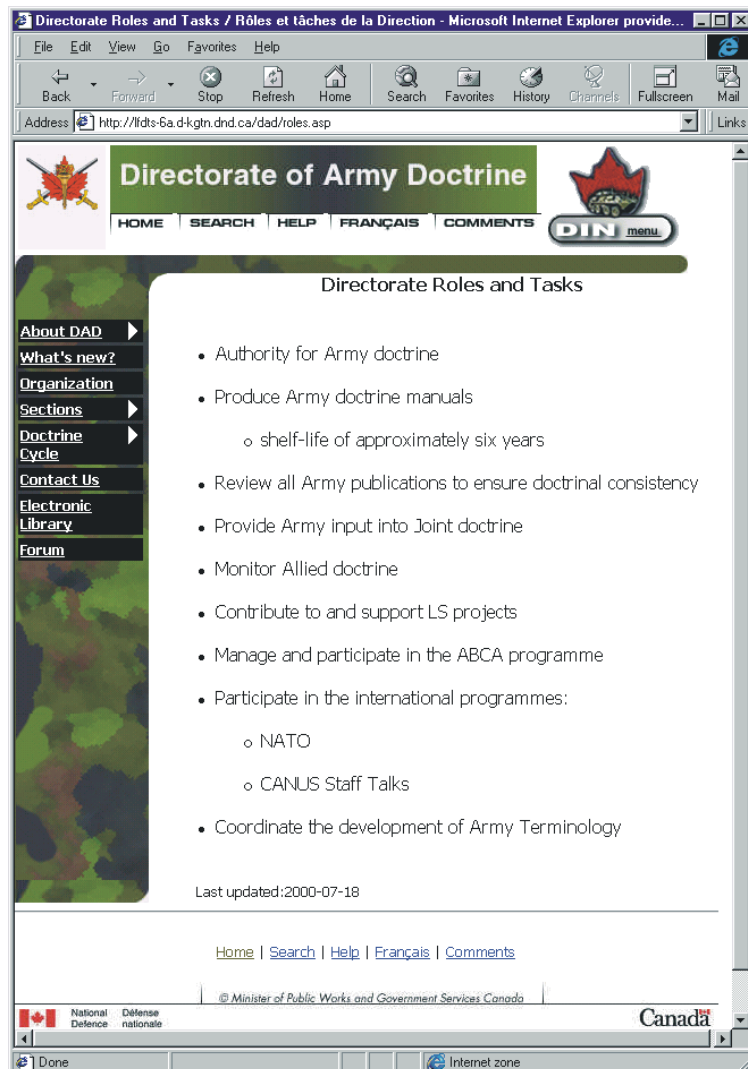


ENDNOTE

¹ For example, DLSC Report 9905 by Sean Maloney, PhD, *An Identifiable Cult: The Evolution of Combat Development in the Canadian Army, 1946–1965*, August 1999, is an important step in this direction. It should be pointed out that Dr Maloney is one of the few academics actively writing on operational and other issues regarding the Canadian Army in the post-1945 period.

FROM THE DIRECTORATE OF ARMY DOCTRINE

THE DIRECTORATE OF ARMY DOCTRINE WEB SITE AND DOCTRINE FORUM



Designed to assist in the promulgation of doctrine, the Directorate of Army Doctrine (DAD) Web Site was recently upgraded and is located on the Defence Information Network (DIN) at <http://lfdts-6a.dkgtn.dnd.ca/dad>.

The site provides readers with a description of the Directorate organization, its mission, roles, and tasks. It highlights section responsibilities as they are aligned with the six combat functions—Manoeuvre, Information Operations, Command, Firepower, Protection, and Sustainment—and their involvement in various standardization working groups within the North Atlantic Treaty Organization (NATO) and the American-British-Canadian-Australian (ABCA) Armies Program.

The web site also provides a view of the doctrine environment and the doctrine development process. Furthermore, the site illustrates the current status of the doctrine hierarchy and the production schedule, and it provides easy access to view and download manuals. Most importantly, however, the site offers readers an opportunity to comment on draft manuals placed on the site for open review.

To this end, the site contains the “Doctrine Forum.” Through the Forum, readers may ask questions of the doctrine writers, provide professional input on draft manuals, or seek clarification on any doctrine related topic. The Forum is arranged consistent with the six combat functions; however, if readers are

uncertain as to whom they should submit comments or questions, they could simply ask anyone, and the question will be passed to the appropriate authority.

Lastly, the “What’s New” feature will be used to keep readers informed of major changes to our evolving doctrine and to highlight significant events planned for the Directorate.

Everyone is encouraged to visit the DAD Web Site and contribute to the Doctrine Forum. Queries concerning the site may be addressed to the DAD Army Terminology Coordinator, Mrs Thérèse Lessard, at (613) 541-5010 extension 5947, CSN 270-5947, Fax (613) 541-5903, or via DEMS at T.Lessard@Doctrine@LFDTS.

FROM THE DIRECTORATE OF ARMY DOCTRINE

NEW MILITARY POLICE DOCTRINE, TACTICAL AIDE-MEMOIRE— MILITARY POLICE INSERT, STRUCTURES AND BATTLE TASK STANDARDS

Since the 1996 inception of the Directorates of Army Doctrine (DAD) and Army Training (DAT), a lot of work has been accomplished toward providing the Army with current doctrine and relevant training standards. Among this is *Land Force Military Police Operations, Tactical Aide Memoire—Military Police Insert* and *Military Police Battle Task Standards*. Doctrinal structures that had been prepared by LFCHQ St-Hubert were also validated. This article introduces you to Military Police doctrinal and procedural manuals now available to the Army. All Military Police, regular and reserve, now have current manuals to assist them in executing their operational army tasks.

Since 1985, Military Police doctrine has been under review and many Military Police Officers and NCMs have had the opportunity to review the numerous drafts. None of these manuals were approved and consequently the draft doctrine and procedures were used as interim reference manuals. The Canadian Forces Military Police Academy, previously known as the Canadian Forces School of Intelligence and Security, continue to use Provost Corps references to teach Military Police field operations. Efforts on the part of the DAD have resulted in the production of new doctrine and procedures for the use of the Army. Military Police now have contemporary doctrine, B-GL-362-001/FP-001 *Land Force Military Police Operations*, which enables them to effectively support the Canadian army in the context of manoeuvre warfare and mission



Figure 1: The Pointsman

command on the modern battlefield. This reference manual supersedes the outdated B-SI-315-004/FT-001 *Military Police in the Field* published on 30 November 1973. The Military Police structures required to fulfil tasks identified in the doctrine are contained in B-GL-331-005/FP-001 *The Canadian Land Force Electronic Battle Box¹ (EBB)* dated October 1999. B-GL-383-002/PT-021 *Military Police Battle Task Standards (MP BTS)*, which should be published in draft when this article is published, assist sub-units and units existing within formations to validate their training to ensure that they are fulfilling their operational tasks in accordance with approved doctrine and procedures.

DOCTRINE

Land Force Military Police Operations is the primary source for army Military Police doctrine. It is firmly based on the foundations established in B-GL-300-001/FP-000 *Conduct of Land Operations*, B-GL-300-002/FP-000 *Land Force Tactical Doctrine* and B-GL-300-003/FP-000 *Command*. Military Police doctrine will also be introduced in B-GL-300-006/FP-001 *Land Force Protection*, which should be published within the next year.

Land Force Military Police Operations complements the policy, direction or procedures provided by the Canadian Forces. Reference manuals such as *Canadian Forces Administrative Order 22-4 Security and Military Police Services*, A-SJ-100-004/AG-000 *Canadian Forces Military Police Policies and Technical Procedures²*, and A-SJ-100-001/AS-001 *National Defence Security Instructions³* continue to apply to operations and have precedence over doctrine. They provide guidance to Security Officers for the employment of Military Police in some Military Police or Security tasks and detail procedures to accomplish policing and security, as provided by the Canadian Forces Provost Marshal who exercises technical control over some tasks assigned.

The role of Military Police is to provide commanders with an essential element of command and control, through the conduct of four functions: Mobility Support, Security, Detention, and Police Operations. *Land Force Military Police Operations* is divided

into six chapters and defines how Military Police succeed in fulfilling their role. Chapter 1 introduces the fundamentals of army operations and Chapter 2 provides the general principles for employment of Military Police. Chapters 3 to 6 provide doctrine for the four Military Police functions:

- ✦ Mobility Support;
- ✦ Security;
- ✦ Detention; and
- ✦ Police Operations.

A Military Police Function Matrix, providing a breakdown of Military Police functions and subordinate tasks, is found at Annex A of *Land Force Military Police Operations*. This annex delineates the responsibilities at the strategic, operational and tactical levels of conflict for each task. The matrix provides a quick overview of responsibilities assigned to Military Police throughout the spectrum of conflict depicted at Figure 2, and defines the level of command responsible for the execution of the various Military Police tasks.

Current army doctrine distinguishes between three levels of conflict: strategic, operational, and tactical. The success of Military Police operations depends upon the successful integration of Military Police activities at these three levels. The efforts of Military Police within Canada, operational level units such as the Canadian Forces Military Police Unit (MPU) or the Canadian Forces National Investigation Service (NIS), and tactical level units within the Army, must be co-ordinated to minimize duplication given the limited resources.

Police and detention operations are the responsibility of the Canadian Forces and can not generally be devolved to allied formation Military Police. Although co-operation with those forces would be sought and multinational units established, Canadian Military Police units or detachments would usually conduct these activities.

Mobility and Security Operations must be co-ordinated amongst all police forces, whether civilian, allied or Canadian, to provide efficiency and effectiveness. Land Force *Military Police* doctrine is consistent with all NATO agreements and specifically APP-12 *NATO Military Police Doctrine and Procedures* (currently being written).

Military Police responsibilities have been regrouped into four functions:

- ✦ Mobility Support;
- ✦ Security;
- ✦ Detention; and
- ✦ Police Operations.

Hereunder, is found a short resume of each of these four functions that apply throughout the continuum of conflict. Whether in peacetime, Peace Support Operations, or at war, Military Police accomplish tasks associated with each function. Emphasis on one function or another varies depending on the type or phase of an operation, but the full complement of tasks remains the responsibility of Military Police.

Mobility Support Operations.

Military Police support the commander by ensuring an uninterrupted flow of traffic within his or her area of operation. Efficient traffic movement, enforcement of traffic regulations, straggler control, population movement and potentially NBC monitoring all enhance the mobility on the traffic network.

Mission Command calls for commanders to provide their subordinates with greater discretion and flexibility. On the non-contiguous battlefield, commanders allow their subordinates to manoeuvre more freely within their area of operation, which is often larger than in the past. Less predictable, highly mobile and lethal units usually need to move quickly into combat to be effective. Military Police support these units by ensuring resources can be concentrated at the right place at the right time to provide the decisive action. This is the focus of Military Police during warfighting.

Security Operations. Military Police support the commander by contributing to the establishment and maintenance of a secure environment

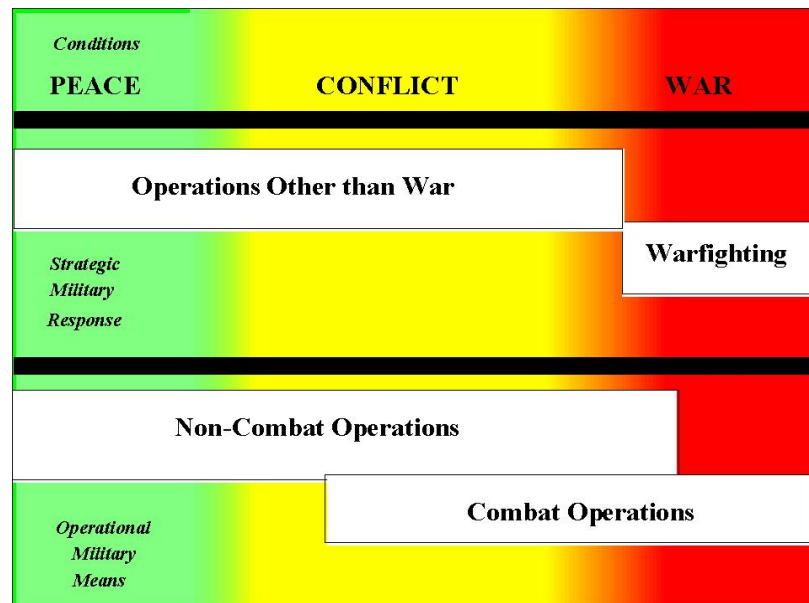


Figure 2: The Continuum of Operations Superimposed on the Spectrum of Conflict.

for units and soldiers. The implementation of efficient security measures, before and during operations, provides the commander with an important tactical advantage. Military Police focus on providing advice on protective security measures aimed at denying hostile intelligence services or criminal elements access to information, including information on activities and installations of friendly forces, materiel, or other assets.

All commanders are responsible for the protection of their operations, activities, establishments, personnel, information and material. The means, resources and measures available to the commander to provide for this protection during peace and at all levels of conflict, contributing to the overall tactical security, are termed Protection. One aspect of Force Protection is Protective Security described above. Commanders attempting to co-ordinate a seamless security posture must integrate finite joint, combined, and interagency security resources at the right time and place.

Security provides the commander with the freedom of action to conduct operations in an environment where the threat to operations and to forces has been reduced. Security plans must be co-ordinated with a number of key staff officers as an integral part of the Operations Planning Process (OPP). Introductory discussion of the OPP is given in *Command*. B-GL-365-000/FP-001 *Land Force Security* doctrine for the Army is currently being written and command responsibilities will be detailed therein. This new manual may assign additional responsibilities to Military Police and Provost Marshal staff beyond those detailed in *National Defence Security Policies*. *Land Force Security* doctrine will be closely aligned with approved *Land Force Protection* and *Information Operations* doctrine.

Detention Operations. Military Police support the commander by ensuring that soldiers ordered into

service custody are held in adequate facilities supervised by Military Police in accordance with regulations. The provision of this support assists commanders in maintaining discipline and morale, essential elements to sustaining unit cohesion. Military Police soldiers also handle custody of civilians legally apprehended within a Canadian area of operation. Additionally, immediately after capture, prisoners of war must be handled by Military Police and promptly evacuated away from immediate combat. This reduces the administrative burden on commanding officers and commanders, enabling them to focus on the battle. Military Police ensure that all regulations pertaining to prisoners of war articulated in the *Geneva Conventions* are executed as prescribed.

Military Police units are charged with the responsibility of operating detention facilities and for co-ordinating the rearward evacuation of prisoners. Detention operations include three categories of activities:

- ◆ **Prisoners of War Tasks.** The operation of Prisoner of War Collection Points in accordance with the requirements of the *Third Geneva Convention* and Protocol 1 of *Protocols Additional to the Geneva Conventions*;
- ◆ **Service Detainee Custody Tasks.** The operation of guardrooms and detention facilities in accordance with the *National Defence Act* to detain Canadian Forces soldiers under arrest; and
- ◆ **Civilian Custody Tasks.** The operation of temporary detention facilities for civilian detainees consistent with the Rules of Engagement.

Police Operations. Military Police support the commander by ensuring a high standard of discipline is maintained. Military Police units assist

in maintaining discipline by establishing crime prevention programmes, conducting law enforcement activities and investigating offences. At the tactical level, Police operations are invariably more intensive during the pre and post hostility phases. When conducting Police Operations, Military Police focus on crime prevention, rather than the enforcement of laws and regulations. This is the focus of Military Police, especially in areas away from combat such as is the case in periods of rest and recreation. Military Police units and the Provost Marshal, in co-operation with unit Commanding Officers and formation Commanders, establish a crime prevention programme in order to maintain discipline rather than having to impose it. Military Police and all commanders must work together to ensure Canadian soldiers maintain an excellent level of discipline.

TACTICAL AIDE-MEMOIRE (TAM)—MP INSERT

The *Unit Standard Operating Procedures (USOP)* and the *Tactical Aide-Memoire (TAM)*⁴ complement army doctrine. Similarly, B-GL-332-012/FP-001 *Tactical Aide-Memoire Insert—Military Police (TAM—MP Insert)* complements *Land Force Military Police Operations*. Techniques, tactics and procedures used by MP to execute their tasks are included in the *TAM—MP Insert*.

Military Police doctrine and the *TAM—MP Insert* incorporate international agreements and procedures that have been agreed upon by members of the North Atlantic Treaty Organization (NATO) and the American, British, Canadian and Australian (ABCA) Standardization Programme. These enable the Canadian army to be interoperable in a multi-national force without having to refer to various agreements ratified by Canada.

The layout of the *TAM—MP Insert* is similar to the doctrine in that the

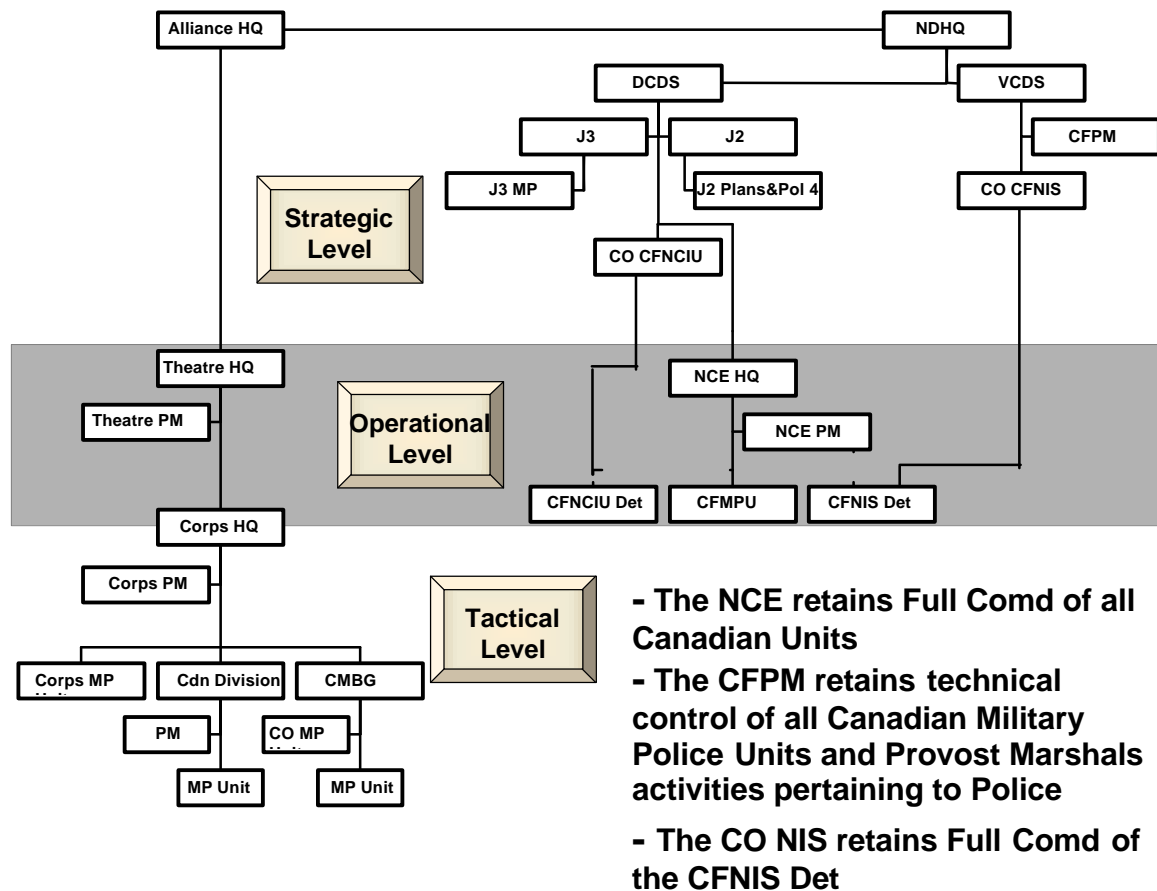


Figure 3: Military Police Structures and Staff at all Levels of Command

procedures are regrouped by function and provide a quick reference containing essential information for Military Police of all ranks. Additionally, there are numerous annexes amplifying the text. The *TAM—MP Insert* is the arms insert that must be added to the *Tactical Aide-Memoire* that all army MPs should have.

MP STRUCTURES

Army structures have been removed from the doctrine manuals. This ensures that doctrinal manuals do not have to be amended when changes to structures not impacting on doctrine are approved. It also allows for formation and unit structures to be reviewed regularly, based on doctrine, and to ensure that

the optimum structures are approved to fulfil doctrinal tasks assigned to units.

Military Police structures can be found in the *EBB*, providing doctrinally sound structures for the Canadian army. The structures are based on an Allied Corps, which includes a Canadian Mechanized Brigade Group (20 CMBG), a Canadian Division (4 Div), Corps troops and allied formations. Major equipment and personnel quantities of national units at the operational level, including the Canadian Forces Military Police Unit, are also identified in the *EBB*. When doctrinally correct structures are required, for force planning or training purposes, the planners and the training institutions should utilize this electronic document. The MP structures depicted

in the *EBB* are the structures required to support their respective formations during war. MP peacetime structures are restricted to reflect economic realities and do not have the full complement of personnel and equipment to fulfil assigned tasks without augmentation. MP structures for each deployment are inevitably adjusted to meet mission specific requirements and do not necessarily reflect the doctrinal structures to support a warfighting Canadian Mechanized Brigade Group. Figure 3 shows Canadian and allied Military Police organizations and staff that could be operating in a theatre. *Military Police* doctrine describes the responsibilities and capabilities of the Canadian units and associated staff.

MILITARY POLICE BATTLE TASK STANDARDS (BTS)

In addition to individual training provided by the Canadian Forces Military Police Academy, realistic and challenging collective training is required to enable units to perform effectively in operations and to ultimately achieve sub-unit and unit cohesiveness. BTS are the means by which the Army ensures skills are maintained and validated at unit level. *MP BTS* establish the collective training standards from jeep teams up to platoon level. BTS for unit Regimental Police are also provided.

MP BTS provides common standards against which performance can be measured. These standards can be used to assist commanders in providing direction and guidance in the planning and conduct of collective training of Military Police organizations. The *MP BTS* focuses on Mobility and Detention Operations. Standards for Police and Security Operations are prescribed in *Canadian Forces Military Police Policies and Technical Procedures* and *National Defence Security Instructions* and will continue to be performed and audited in accordance with direction provided by the Canadian Forces Provost Marshal.

Although the battle tasks listed in *MP BTS* are those that any Military Police Platoon, section, patrol or Regimental Police could be required to perform in operations, resource and time constraints make it impractical to train on every battle task during every training cycle. Before the beginning of each training cycle, platoon and section commanders, in conjunction with their higher commander, must identify the high priority battle tasks for which they will train and be evaluated upon during the upcoming training cycle.

ELECTRONIC REFERENCES

The references listed below are available on the Defence Information Network and should be consulted to enhance the reader's knowledge of developments in army doctrine and training.

Readers are encouraged to provide comments and suggestions on *Military Police* doctrine, procedures, structures and training via the Protection board in the Doctrine Forum listed below.

<http://lfdts-6a.d-kgtn.dnd.ca/English/default.asp>—Land Force Doctrine and Training System (LFDTs).

<http://lfdts-6a.d-kgtn.dnd.ca/dad/English/default.htm>—Directorate of Army Doctrine (DAD).

<http://lfdts-6a.d-kgtn.dnd.ca/AEL/english/main.asp>—Army Electronic Library (AEL).

http://lfdts-6a.d-kgtn.dnd.ca/scripts/doctrine_forum/ultraBoard.pl—Doctrine Forum.

<http://lfdts-6a.d-kgtn.dnd.ca/dat/english/index.htm>—Directorate of Army Training (DAT).

<http://lfdts-6a.d-kgtn.dnd.ca/dat/english/bts.htm>—Battle Task Standards.

http://131.134.112.25/vcds/cfpm/intro_e.asp—Canadian Forces Provost Marshal.

SUMMARY

Following the adoption of new doctrinal concepts, the Army has provided Military Police with new doctrine, procedures, and battle task standards and has revised the Military Police structures. Found within four separate documents, these reference manuals replace the outdated *Military Police in the Field* doctrine manual published in 1973. Army Military Police, as well as Army staff and training establishments now possess up-to-date manuals to guide them in the employment and training of Military Police soldiers and units.

Military Police, at home or abroad, continue to provide professional support to army Commanders. Military Police co-operate with operational level units, allied forces, and civilian police forces to fulfil their tasks, which are regrouped within four functions: Mobility Support; Security, Detention, and Police Operations.



ENDNOTES

- 1 Note that the current version of the *Electronic Battle Box* is version 2.1 dated October 1999. The next version will be included on Baseline software available on the Defence Information Network.
- 2 Upon completion, this manual supersedes A-SJ-100-004/AG-000 *Military Police Policies* dated 1996-08-27.
- 3 This manual replaces the A-SJ-100-001/AS-001 *National Defence Security Policy*. Approved chapters of *National Defence Security Instructions* are promulgated on the Defence Information Network at http://131.134.112.25/vcds/cfpm/pubs/ndsi/intro_e.asp.
- 4 B-GL-332-001/FP-001 *Unit Standard Operating Procedures* and B-GL-332-001/FP-002 *Tactical Aide-Memoire* are provided in a small binder in which the *TAM—MP Insert* is added. All are printed on waterproof paper.

FROM THE DIRECTORATE OF ARMY TRAINING

THE NEW TRAINING PHILOSOPHY

In the last edition of *The Army Doctrine and Training Bulletin*, DAT introduced evidence about the dysfunctional nature of collective training within the Army. This edition will establish the way ahead by presenting the fundamental principles for Army training—individual and collective—which will underpin the new training philosophy articulated in B-GL-300-008. This publication will describe how the Canadian army should train for war. It is to be the primary training reference for use in the Army and will contain those elements of training philosophy and strategy necessary for understanding. The intended audience will span the rank spectrum from new junior leaders to senior commanders: essentially anyone who is a commander and those involved in planning and conducting training. The document will explain the Army training system, the processes by which we ensure that professional development is achieved through an integrated management of the Army's Individual and Collective Training Systems and the Army's Operations Cycle. The systems-approach articulated in B-GL-300-008 is founded upon nine training principles that provide guidance to commanders when considering training design, and are tenets by which one can judge training effectiveness. They are described here to set the scene for publication of B-GL-300-008—which will appear in Draft across the Army in September 2000, with final publication set for early in 2001. All commanders and trainers in the Army will have a role in the implementation of the Army's new training philosophy, and should read the following critically.

It is the present writer's impression, however, that the Canadian Army also suffered from possessing a proportion of regimental officers whose attitude toward training was casual and haphazard rather than urgent and scientific: like the traditional amateur actor, they were cheerfully confident that it would 'be all right on the night' without their having to extend themselves too much.

Col C.P. Stacey
Official History of the Canadian Army in the Second World War

THE PRINCIPLES OF TRAINING

Training is a great art: there are principles of training just as there are principles of war.

**Field Marshal
Bernard Montgomery**

TRAINING IS COMMAND-DRIVEN

Training is a function of command. It is the mechanism by which a commander shapes and influences soldiers, and through which he or she instils in subordinates the skills and confidence required to succeed. It

follows that all commanders who wish to command well trained forces, capable of executing their plans, should be competent trainers.

Commanders at all levels have a duty to train their subordinates, and to develop them professionally so as to prepare them for positions of increased responsibility. Therefore, commanders must be involved in training, ensuring that it is well organized, properly focused and skilfully conducted. Commanders of units and formations must be involved in the Confirmation process to ensure that subordinate commanders clearly understand higher intent. Commanders must also be engaged in the feedback mechanisms that improve both troop training and Army learning as a whole: these include the After Action Review (AAR) and Army Lessons Learned processes.

Commanders must both train and educate their subordinates. These are complementary activities; training provides the technical and procedural knowledge and skills required in the performance of assigned duties, while education provides a base of knowledge and intellectual skills upon which information can be correctly interpreted and sound judgement exercised. Consequently, command responsibility includes the management of formal individual and collective training and employment experience—Professional Development—for the career-long benefit of subordinates.

TRAIN WITHIN THE LAW

All training will be effected in strict obedience to the *Laws of Armed Conflict*, the *Criminal Code of Canada*, and the *National Defence Act* (Section 130). Canada maintains a reputation as an enlightened democracy, and Canadian values reflect the highest regard for individual freedom and well-being, with equal commitment to the rule of law. Canadian army training will remain consistent with these values. All commanders and trainers must remain cognizant that trainees, especially recruits, absorb everything they learn and see in training, even if it is illegal, improper or contrary to Canadian values. Failure to correct during training any breaches of the law, both in the letter of the law and in its spirit, will convey to the trainee a sinister licence. Actions sanctioned in training will be practised on operations; if unlawful, such actions will have serious debilitating effects upon unit operational ability, unit honour, Canadian army pride and Canada's international reputation.

TRAIN AS WE INTEND TO FIGHT

The Canadian soldier must be ready to perform his duties across the full spectrum of conflict regardless of what form conflict assumes. Most conflict environments will require a mix of combat and non-combat activities, even if the combat aspect is held as latent potential. Soldiers and units may well have to conduct both types of activity in the same vicinity on the same day. Whether conducting combat or non-combat tasks, Canadian army doctrine demands that our soldiers know how to impose their will upon adversaries by seizing and maintaining the operational initiative. The ability to do this requires first and foremost a

mastery of combat skills. It also requires sound tactics, techniques and procedures (TTP) for non-combat activities, and discretion when considering the application of force, particularly with regard to Rules of Engagement. It is the responsibility of commanders to ensure that Army doctrine is applied and that training replicates as realistically as possible the complex nature of modern conflict, and prepares the soldier adequately to reduce the inevitable surprises and shocks of war. In order to allow soldiers to practice the seizure and maintenance of the initiative no aspect of training is to be made 'notional' if a means to simulate it is available. Commanders are responsible to ensure that we train as we intend to fight.

ONE UNIFIED OPERATIONAL STANDARD

In an army as small as Canada's it is essential that there be but one set of training standards. These standards must reflect the realistic levels of operational readiness that field force units can maintain over time. The Army Systems Approach to Training (ASAT) drives individual training requirements throughout the Army. Standards for individual training are codified within various Qualification Standards (QS) and within the Individual Battle Task Standards (IBTS). These standards are set and maintained under the LFDTS. Likewise for collective training: the CLS assigns operational tasks and resources to the Land Force Area Commanders, and the Commander LFDTS is responsible for the designation of specific Battle Task Standards (BTS) to be met by field force commanders in training for operational tasks. Commander LFDTS will also confirm the result of field force training, measuring it

against the assigned standards. BTSs therefore, will remain the performance objectives of collective training.

All training standards are derived from operational doctrine. Doctrine has been divided up into specific battle tasks, each maintaining a specific time and accuracy standard, together called the Battle Task Standard. The aim of all collective training is to successfully achieve one or more prescribed BTSs, in the same way that individual training events are designed to successfully achieve performance objectives defined in a QS. Accordingly, all exercise instructions should state which BTS are being exercised, precisely describe the expected training outcome, and define how success will be measured.

While being the authority on all Army training standards, Commander LFDTS's mandate will not impede the practice of Mission Command during training. Commanders at all levels will have freedom to use their initiative and imagination in the design and conduct of collective training. However, the scope and focus of their training will be set and confirmed by the Army's training authority. This will ensure that a common high standard of training is achieved, and that training matches operational need.

TRAIN TO NEED

The Army can not afford to have every unit simultaneously attempting to train to the highest level of operational readiness (the Deployment Level of Capability—or DLOC). Training some units to achieve or to maintain this level of capability requires the allocation of a greater share of the Army's training resources to these units; which in

turn means that other units will only be able to train to a Core level of Capability (CLOC) or to a Minimum Level of Capability (MLOC). In this way training will be aligned with the operational tasks outlined in the Strategic Operations and Resources Directive (SORD), and those units designated to conduct missions requiring DLOC will become the main effort for Army training resources. It is foreseen that designation of such units will continue on a cyclic basis. Therefore unit and formation training and exercise plans must reflect the current operational status of that unit or formation and train for their specified operational tasks.

Likewise, all individual training must answer a specific qualification requirement, generated by the needs of the individual's job or the skill and knowledge requirements of the next developmental period (DP). Occupational Specialty Specification (OSS) training should only be conducted when a lack of trained personnel (including authorized redundancies) has been forecast in a unit. Army Unit Qualification Lists (UQL) and the unit's current operational-readiness Level of Capability will be used to determine individual training needs. A demand for OSS individual training may be denied if the above criteria have not been met. The UQL has been designed to assist with the determination of the types and number of Special Personnel Qualification Requirements (SPQRs), including operational redundancies, that a unit must hold to be operationally effective. It is an efficiency control measure that limits over production of qualified personnel, who consume scarce resources that would be better invested in other operational training imperatives.

Operational tempo occasionally requires sub-units to re-role. While this may be required it must be remembered that training soldiers to perform the Occupational Specification (OS) and OSS functions of another Military Occupation (MOC) can strain training resources. It also leads to skill-fade in the sub-units primary MOC, requiring further allocation of resources once that sub-unit reverts back to its primary role. Authority to re-role any sub-unit is vested in the Chief of the Land Staff.

RESOURCES MUST FOLLOW TASKS

The SORD contains the Army Training and Task Table which sets the assigned training level for each Defence Planning Guidance (DPG) task. Each task has a prescribed set of BTS to be achieved and an allocation of resources to achieve the required capability level. In principle, the resources are 'bolted' to the task as it is not feasible to assign a task without the resources required to achieve it: nor can resources be removed without reduction of the task. Commanders at all levels are responsible to achieve the training level assigned in the SORD within the resource envelope provided. If for any reason this is assessed as unachievable, the commander making that assessment must explain to his or her superior commander what are the perceived risks to operational capability. The superior commander must either resolve the issue or assume the risk and declare it to the next level of command. Only under extreme circumstances may a superior commander assign a training task to a subordinate in the knowledge that resources are insufficient to accomplish it. In such cases the entire chain of command must be alerted to the risks involved.

TRAIN PROGRESSIVELY

Army training must be progressive. Individuals must acquire certain skills before they can be effective in team training; and teams, crews or sections must reach some degree of competency in their collective skills before they can participate successfully in troop or platoon training. Naturally troops and platoons must get their act together before progressing on to company/squadron and combined arms training. The Army has a structured and progressive approach to training that includes seven levels (described in B-GL-300-008, Chapter 3), starting with the individual and proceeding to formation level. Within each level there are three Stages of Training: Preliminary, Practice, and Confirmation. Soldiers should go through all three stages before progressing from one level to another. This is important as it alone guarantees mastery of skills, common understanding of SOPs and TTPs, and the development of shared understanding of higher intent throughout a unit/formation. Commanders who can observe their subordinate commanders and troops undergoing progressive training will have the advantage of ensuring that commander's intent is understood. In this regard cohesion will grow substantively with each stage and level of training. A commander assumes risk when truncating the progressive training structure; a risk manifest in individuals lacking expertise and groups acting without cohesion.

TRAINING MUST BE CONFIRMED

Confirmation of a particular BTS for soldiers training at a particular level must be overseen by the commander two levels up (ie: Unit CO for troop/

platoon BTS training). If the confirmation is successful the soldiers proceed to the next Level of Training. If not, the deficient Battle Tasks are practised again and re-confirmed. Progression to the next level should not occur before all BTS specified for that level are confirmed.

Confirmation should be considered as part of a collective learning method and not an evaluating tool for commanders at any particular level. Mistakes must be accepted as a fundamental part of collective training and team learning and should be held as a positive aspect of honest operational training.

The principle of confirmation ‘two down’ must be observed. Leaders who train their subordinates will become too engaged to render unbiased, objective confirmation. Therefore, Training Plans should be briefed two up, and the commander to whom the plan was briefed must conduct the confirmation at the gateway training event. In this way, it is recognized that success and failure are as much a product of a healthy ‘command climate’ as they are the result of effective training technique. Under no circumstances should leaders at any level confirm their own training.

ALL TRAINING MUST BE REVIEWED

At each Level of Training three separate Stages of Training are followed: Preliminary, Practice and Confirmation (see B-GL-300-008, Chapter 2). During each stage commanders conducting and observing training may conduct After-Action Reviews (AAR). An AAR is a professional discussion of

a training event (or operation) that is focused on performance standards (BTS) that enables soldiers to understand what happened, why it happened, what should have happened and how to sustain strengths or to improve upon weaknesses. The AAR also allows commanders to see to what extent their concept of operations and intent (explicit and implicit) is understood by the soldiers throughout the command. Lastly and importantly; the AAR process is a feedback mechanism that provides input back into the Army’s Doctrine and Training System. It provides necessary data for the proper review and amendment of local SOPs, Army doctrine and TTPs. AARs are conducted informally at all levels in all stages of training, and formally whenever resources are on hand to do so. Participation of Army Lessons Learned Centre personnel in the AAR process will further institutional learning within the Army.

CONCLUSION

It is through training that commanders manage the professional development of their subordinates; and training is the mechanism by which commanders forge operational-ready and combat-capable units. While training must remain command-driven, with a commander’s creative and critical participation driving the training process, it must also be remembered that the Army has a systematic approach to training that establishes specific training scope and focus for each field force commander. The Army also requires that commanders train within the rule and spirit of the Law. As well, our soldiers need realistic training wherein commanders use all the

available allocated resources to train as we intend to fight. All training will be designed and measured using common operational standards encapsulated in Army BTS. The CLS will designate which units and formations are the main effort for Army training resources, and allocation of resources to those units not required to achieve the DLOC will reflect the two principles of train to need and resources following tasks. Regardless of what training status a unit has, all training will be conducted in a progressive manner, ensuring confirmation is achieved before higher levels of training are started. Also, the AAR process should be used liberally to improve collective training performance and to ensure the dissemination of the commander’s implicit intent. Use of these principles will ensure that Canada’s Army produces highly qualified individuals and cohesive, deployable and combat ready units and formations; our centre of gravity. These principles will be reproduced and expanded upon within B-GL-300-008. Understanding of these principles is critical to all commanders and trainers in the Army—proper implementation relies upon it.



FIREPOWER 2020 THE END OF CLOSE SUPPORT?

Colonel M.D. Capstick, CD

THE CANADIAN ARMY AND “ALTERNATE FUTURES”

As the Canadian army enters the new millennium it is embarking upon a wide-ranging review of capabilities, structures and concepts to assure operational effectiveness into the next century. Much of this work has concentrated on “alternate strategic futures” and the application of innovative technologies to modern warfare. These “alternate strategic futures” are clearly described in the Directorate of Land Strategic Concepts Report entitled *The Future Security Environment*.² When boiled down to their essence, these “alternate strategic futures” represent the ends of a spectrum (or continuum) that ranges from conventional conflict between national entities (the “son of Desert Storm”) to “asymmetric conflict” that looks more like the “step-child of Chechnya”.³ To deal with these “alternate strategic futures”, Canadian military strategy⁴ and force structure options seem to be firmly rooted in high-tech solutions and deductions of what has been called the *Revolution in Military Affairs (RMA)*.

This paper does not argue the case for either “future” in this paper, nor does it debate the merits of the RMA.⁵ As important as these related debates are, the reality is that the fighting army of 2020 will still be focussed at the tactical level - battle group and brigade. It will be equipped with lightly armoured fighting vehicles fitted with some of the technologies that RMA concepts are based upon. Although it will be capable of executing operational level missions,⁶ it will do so by fighting tactical battles. For the soldier and commander in the

The threat in the early years of the next century will not be the “son of Desert Storm” but the “step-child of Chechnya.”

General Charles C. Krulak
USMC¹

combat team and battle group these will be part of the **Close Fight**. The concepts of *Dominant Manoeuvre* and *Precision Engagement* at long ranges are inherently strategic and operational.⁷ As valid as they are at those levels, they need to be applied differently at the point where the Light Armoured Vehicle (LAV) III ramps go down or when the *Coyote* crew is trying to work its way out of a tight spot.

It is also essential to note that the application of US *Army After Next* (AAN) concepts continue to be tested and experimented through a series of war games and simulations.⁸ These have challenged many of the AAN assumptions, and when combined with a greater appreciation for the uncertainties of the strategic future, have resulted in a far more realistic assessment of the potential of technology in achieving “bloodless victories” in future conflicts. Major-General Robert Scales, one of the most influential AAN study team leaders, has concluded that :

... technology is only one of many influences on the conduct and outcome of military operations, an influence mediated by the nature,

scope, and locale of the conflict, the character and objectives of the combatants, the attitudes of local, domestic, and international publics, and above all, the political issues in dispute.⁹

This conclusion goes to the heart of the political, social, attitudinal and fiscal context of Canadian defence, security and foreign policies. It should also have a direct impact on the decisions required about future force structure, equipment and operational concepts.

FIREPOWER—PRECISION ENGAGEMENT

Precision engagement, relying on attrition with stand off weapons, may punish an enemy and risk few casualties, but it is difficult to be sure of success. Attrition effects can be slow to produce decisive results. What is effective in the open desert will not necessarily suffice in forests, mountains or urban areas where precision firepower is disadvantaged.¹⁰

Although the concept of *Precision Engagement* offers the hope of “bloodless victory”, and precision guidance systems have achieved remarkable results in recent conflicts, it is clear that they are not a panacea. *Precision Engagement* is, in essence, a high tech descendant of the attrition warfare methods that have dominated the “American way of war” for a century and a half. Attrition alone has never, and will never, achieve the decision that is so necessary for victory in war. The last Hundred Days of the First World

War, the breakout from the Normandy beaches and the stalemate of the last two years of the Korean Conflict give ample proof of this assertion. The attrition method used in these wars was characterized by mass over accuracy and, despite the carnage, proved indecisive. The same holds true for *Precision Engagement*. “The effects of attrition are usually transitory. It possesses no forcing function to compel enemy compliance even after inflicting great destruction.”¹¹ One only has to contrast the massive damage inflicted by NATO airstrikes directed against Serbian infrastructure and the relatively low levels of damage suffered by fielded Yugoslavian National Army (JNA) forces in Kosovo to determine the limitations of *Precision Engagement* in finishing the job. This reality is further complicated by the realities of modern conflict: the “CNN effect”, aversion to civilian casualties, the sheer expense of these weapons, and the political imperative to avoid friendly casualties. This is not to say that weapons of attrition are not capable of influencing the battle and the outcome of an operation. Rather, they provide an astonishing capability at the *strategic* and *operational* levels in concert with the other precepts of the AAN. As Scales has concluded:

our goal in applying firepower must be to exploit its substantial paralytic effects to gain advantage. To win quickly and decisively at low cost in the future, we must have the means to conduct the battle quickly and end it cleanly, preferably at the moment when the paralytic effect of firepower is greatest. Victory is best guaranteed through manoeuvre of forces on the ground.¹²

The moment when the “paralytic effects of firepower is greatest” is largely a function of the level of command. At the strategic level, “the moment” could last for days or even weeks, as was the case in the recent campaign against Yugoslavia. At the

operational level it could be only a matter of hours before the enemy begins to recover from the paralytic effects. At the tactical level the paralysis usually lasts minutes. Clearly, the decisive action of manoeuvre forces must conform to this paradigm.

Combat at distances short of maximum effective range and down to gunfighting range is the true essence of what the close fight is all about. To close to these distances with any hope of winning and surviving as an effective fighting force, the manoeuvre commander relies on close, indirect fires from mortars and artillery.¹⁶

MGen Carl F. Ernst
US Army

If long range *Precision Engagement* is not a “war winner” on its own at the strategic and operational levels, it is even less of one at the tactical level in the *Close Fight*. In conflicts that resemble the “step-child of Chechnya”, the combatants will use every means possible to degrade the effects of precision weapons. They will seek refuge in urban areas and disperse in complex terrain like mountains and forests. They will employ decoys and communicate using methods that defy our efforts to gain *information dominance*.¹³ The only way to achieve victory will be to control the terrain that the enemy needs for survival.¹⁴ In short, “...there will always be a requirement for the *Grunt* to confront the enemy in close, personal and brutal combat.”¹⁵ Given that the Canadian army of 2020 will, by its very nature, be employed in operations as battle groups and brigades (even in the “son of Desert Storm” scenario), it is essential that its firepower system be designed *mainly* for the *Close Fight*.

FIREPOWER IN THE CLOSE FIGHT

The kind of firepower needed to permit manoeuvre in the *Close Fight* **must** protect the force while it is closing to within “gunfighting” range—there is no other way to ensure that the “paralytic effects” of fire and the shock of a well co-ordinated attack combine to force a decision. De Czege and Echevarria have described this combination punch as “...defeat by disintegration.”¹⁷ In this approach, firepower “...not only destroys, it psychologically suppresses soldiers and disrupts their organizations. This, in turn, permits the rapid arrival of troops on the ground to take control of a local situation before the transitory effects pass...”¹⁸ In other words, the problem of the “last 300 metres” remains despite new technology and the RMA. Major-General Ernst has concluded that to “...close that final distance under enemy fire without the suppressive and destructive effects of indirect fires is worse than folly—it’s suicide.”¹⁹

In the initial enthusiasm for the more technological aspects of the RMA that resulted after the Gulf War, many analysts concluded that all firepower could be controlled by “*sensor-shooter*” linkages and that precision guidance technology should be applied to all firepower systems. These ideas provided the foundation for developmental work on future American systems like *Crusader* (M109 Palladin replacement for the next century) and the *High Mobility Artillery Rocket System* (HIMARS - a lighter, truck-borne version of the highly successful MLRS system). These systems have been designed to allow *Precision Engagement* and are ideal for attacking enemy artillery, mortars, command and control facilities, and other hard targets in depth. Both the systems and targets are also ideal for the development of direct *sensor-shooter* linkages because there is little requirement to co-ordinate the effects of fire with the manoeuvre forces engaged in the *Close Fight*. These

firepower systems are, in fact, the descendants of the General Support (or Depth Fire) artillery of past conflicts and represent a quantum leap in accuracy and effectiveness. They are, however, wholly unsuitable for the close support of manoeuvre forces engaged in the Close Fight.

The concept of direct “*sensor-shooter*” linkage has led some to conclude that the current artillery command and control system is no longer required. The argument is that if all sensors on the battlefield can locate targets, communicate with the weapons and observe the effects, there is no requirement for the Forward Observation Officers (FOO) and Battery Commanders (BC) who control artillery today. This ignores the real role of the FOO/BC—to plan and co-ordinate the application of firepower, and to provide advice and liaison to the manoeuvre commander. In other words, the FOO is far more than a *sensor* and actually serves as the “orchestra conductor” who controls all firepower in close proximity to the manoeuvre force. In any force configured for the Close Fight, this function is not a luxury—it is essential.²⁰ This assertion is not just opinion; it has been debated in the American Army for years and is repeated in innumerable After Action Reports from the National Training Centre and the Joint Readiness Training Centre.²¹ Operations are becoming more complex and therefore commanders have to consider a wider range of sensor-shooter mixes than ever before, have a far wider array of systems at their disposal and consider other complicated factors like troop safety, collateral damage and the potential strategic impact of low-level tactical decisions. In this vision of the future, it would be a grave error to dismiss a system that is advocated by the most experienced commanders of the most “digitized” army in the world in favour of an untested technological *sensor-shooter* linkage.

Equipment is another critical issue in the development of the Canadian army’s fire support system in the 21st Century. There is no doubt that technology makes a significant contribution to range, accuracy, lethality and response times as digitization increases. That being said, it is important to note the real-world constraints that bear on equipment decisions in the near term. In the first instance, cost and development/acquisition cycles mean that the equipment required in 2020 needs to be in development now. *Crusader*, the major American project under development, will be a 70-ton behemoth that likely does not meet Canadian requirements for strategic mobility and affordability. Even systems like the British AS 90 and the German

The answer to the question of how close is close enough for fires is, simply, as close as I need them to kill the enemy or close enough to keep his head down while I get in there to finish the job.²²

**MGen Carl F. Ernst
US Army**

Pz Haubitze 2000 are too large and heavy to be included in any kind of Canadian contingency force that depends on strategic mobility to get to the world’s trouble spots. HIMARS is attractive in terms of mobility, accuracy, lethality and range. However, it is a rocket system that is designed to rain explosives on an area target, and is, therefore, totally unsuitable for the Close Fight. Even when precision munitions are used with either MLRS or HIMARS, the effects are too widespread and lethal for infantry (dismounted or in light armoured vehicles) to get close to.

The intention is not to propose either a change in force structure or in specific equipment to support Canadian battle groups in future operations—these decisions can only be made in concert with the evolution of our current force to Army 2020. However, it is possible to list some basic principles that must be adhered to if the kind of warfare envisioned by the RMA and Strategic Vision 2020 is to be applied at the tactical level:

- ✦ Close Support must be close. Manoeuvre troops in LAV III type vehicles and Armoured Combat Vehicles (ACV) need to close to within gunfighting range under the protection of accurate and effective indirect fire.
- ✦ Every manoeuvre element needs to be accompanied by a competent firepower commander with the authority to co-ordinate all kinds of fire support.
- ✦ Delivery systems must have the same degree of strategic, operational and tactical mobility as the manoeuvre force.

CONCLUSION

Even at this early stage of the force development process some preliminary conclusions can be drawn. To achieve the flexibility needed for success in the widely dispersed operations of the future, every tactical level manoeuvre element (battle group) needs to be supported by a fire-unit. Fire support commanders need to be deployed with every grouping capable of independent action on the battlefield and they need the skills and authority to play their role in the defeat of the enemy by disintegration. Finally, tube artillery systems are the only ones that can provide the combination of speed, accuracy and lethality within an acceptable troop-safety distance in the Close Fight. Given that major weapons systems usually take more than a decade

to move from concept to fielding, this is likely to remain true well past the year 2020.

The AAN concept of *Precision Engagement* is ideally suited to the strategic and operational levels of war. However, the experimentation process underway as part of the AAN process has demonstrated the absolute necessity of manoeuvre and firepower working in concert to impose a decision on a determined enemy. In the Close Fight – the one that Canadian brigade and battle groups will be capable of fighting – this means that systems designed for *Precision Engagement* must not become the norm. This is not to denigrate their potential. There is no doubt that systems like HIMARS are invaluable in deep

operations, and could well find a role in the Canadian army's lower readiness organizations—those that will need the General Support capabilities required in higher level formations.

The US Field Artillery is now in a process of "trend reversal" to ensure that they do not develop an over-reliance on high tech precision systems to the exclusion of the demands of the Close Fight.²³ It would do us all well to remember that "...the current belief that technology alone and the capabilities of distant strike will permit military forces to fight simple, decisive campaigns with few casualties flies in the face of several millennia of accumulated military history. Such idle hopes are the direct result of the 'victory disease' that broke out in the

immediate aftermath of the Gulf War."²⁴ This faith in technology also flies in the face of the hard-earned experience of recent "step-child of Chechnya" conflicts. Despite the RMA and the amazing growth in technology that we have seen in the last decade, the simple fact remains that

Overwhelming, indirect fires in co-ordinated support of a manoeuvre commander's plan remains a most devastating combination for success on yesterday's battlefield and those of the future.²⁵



About the Author . . .

Colonel Mike Capstick enrolled in the Canadian Forces in 1975 and completed Artillery Officer Classification Training in February 1977. He has served with artillery regiments in Petawawa, Shilo and Germany. Colonel Capstick also commanded the 1st Regiment Royal Canadian Horse Artillery. He has held various staff positions at Force Mobile Command Headquarters and with the Directorate of Land Combat Development at National Defence Headquarters. Colonel Capstick was also the G3 and later Chief of Staff of Land Force Western Area. Operational service includes a tour in Cyprus while commanding 1 RCHA, and command of the Canadian Contingent of the NATO Stabilization Force in Bosnia-Herzegovina. Colonel Capstick is a graduate of the Instructor in Gunnery (Field) Course, the Infantry Company Commander's Course, the British Joint Warfare Course, and both the Canadian Land Force Command and Staff College and Canadian Forces Command and Staff College. Colonel Capstick is currently Director of Land Personnel and Director of Artillery at National Defence Headquarters in Ottawa.

ENDNOTES

1 Joint Force Quarterly, Spring 1999, p.79.

2 "Directorate-Land Strategic Concepts Report 99/2", *The Future Security Environment*, Fort Frontenac, Kingston, June 1999.

3 *Ibid.*, p. 46.

4 See *Shaping the Future of Canadian Defence: A Strategy for 2020*, Canada—Department of National Defence, June 1999.

5 See Michael E. O'Hanlon, "Beware the 'RMA'nia!" The Brookings Institute at the National Defence University, 9 September 1999. O'Hanlon makes a convincing case that much of the current RMA thinking has veered off in "unproductive or even dangerous directions". He does not discount the potential of technological breakthroughs but is realistic about its limitations when dealing with the "step-children of Chechnya".

6 It could be argued that the Army executes strategic level missions every time it is deployed in support of the Government's foreign policy or Human Security agenda.

7 US Army, "Army Vision 2010"; <http://www.army.mil/2010>.

8 See Major General Robert H. Scales, Jr., *Future Warfare Anthology*, US Army War College (AWC) Strategic Studies Institute, Carlisle PA, 1999. Scales was the senior officer responsible to the Chief of Staff of the Army for AAN development and war games. He is currently Commandant of the AWC.

9 Scales, "Preparing for War in the 21st Century", *Future Warfare*, p. 19.

10 Huba Wass de Czege and Antulio J. Echevarria II, "Landpower and Future Strategy: Insights from the Army after Next", *Joint Force Quarterly*, Spring 1999, p. 68.

11 *Ibid.*

12 Scales, "The Army after Next: Intertwining Military Art, Science, and Technology Out to the Year 2025", *Future Warfare*, p. 166.

13 O'Hanlon, "Beware the RMA'nia!" Lieutenant-General Paul K. Van Ripper USMC (ret'd) is quoted stating, sardonically that "...[W]e had information dominance in Somalia!". As late as 1997, Bosnian Serb politicians could mobilize large masses of people, over long distances, in spite of SFOR efforts to gain information dominance.

14 See Scales, "A Sword with Two Edges: Manoeuvre in 21st Century Warfare", *Future Warfare*, p. 57-79. This chapter offers a wide-ranging discussion of the relationship between firepower and manoeuvre.

15 Major General Carl F. Ernst. "Is the Field Artillery Walking Away from the Close Fight?" *FA Journal*, Fort Sill OK, Sept-Oct 1999.

16 *Ibid.*

17 De Czege, p.68.

18 *Ibid.*, p.69.

19 Ernst.

20 *Ibid.* In this article Ernst advocates the adoption of a fire support C2 system very similar to the one currently employed in Canadian Army.

21 Colonel John D. Rosenberger, *Reaching the Army's full Potential in the 21st Century: Insights from the National Training Center's Opposing Forces* (LPE 99-2), AUSA Institute of Land Warfare Feb 99. Also discussed with CFLO Ft. Sill, 16 Sep 99.

22 Ernest.

23 Communication with CFLO Ft. Sill, 16 Sep 99.

24 Scales, p. vi. This is a quote by Williamson Murray in the Introduction.

25 Ernst, It should be noted that Major-General Ernst is a veteran of both Desert Storm and Joint Task Force Somalia.

PRIVATE MILITARY COMPANIES AS AGENTS FOR THE TRANSFER OF MILITARY KNOW-HOW A MODEL

Captain Cimon Yan

Can private military companies represent a way of transferring military know-how? After exploring the various facets of this question, we will demonstrate that private military companies can easily be seen as agents for transferring military technology to their clients (primarily governments) because of the particular nature of their activities, which consist in helping those clients either avoid conflict or ensure outright victory. In making our case, we will focus on three main points: private military companies, their potential clients (with special focus on African armies), and a model for the transfer between the firms and armies concerned.

THE COMPANIES STUDIED

Western societies recognize that a monopoly on legal coercion rests legitimately with the state—which, even if it has adopted a peaceful stance, cannot rationally exclude recourse to war unless it is ultimately prepared to accept its own dissolution. This may be why Clausewitz considers war an instrument of policy that is not an end in itself, but rather a means to an end.¹

FIELD OF SPECIALIZATION

Historically, the armed forces maintained by national governments have been trained primarily to fight in high-intensity conflicts,² and, as demonstrated by the Vietnam War and the tense situation in the Balkans, have demonstrated certain problems in successfully completing operations associated with low-grade conflicts.³ One of the main explanations for this state of affairs is the political difficulty inherent in assigning troops to such operations and justifying their use in the field, especially when they must take up arms inside a foreign, sovereign country.⁴

Furthermore, some governments are no longer able to maintain or operate armies during peacetime, crises, armed conflicts or the collapse of civil society. Often, in such circumstances, they will try to convince their allies to assist them. For political reasons, however, the latter are not always able to do so. This is when private military companies enter the picture: in addition to consulting services, low-grade conflicts constitute the market niche of private military providers.

SERVICES PROVIDED

These firms offer a wide range of services that, to one degree or another, are military in

nature. In large part, these services consist in providing advice on military matters, as well as training their clients' military and police forces. Only two companies, however, claim to accompany their clients into battle: the now-disbanded Executive Outcomes (EO), and Sandline International.⁵ It is interesting to note that these two firms advocate outright victory and the use of arms in order to resolve conflict and restore peace (in diametric opposition to most conflict-resolution theories), whereas other such companies merely provide strategic, logistical or general technical expertise.

FIRM	SERVICES	NO. OF EMPLOYEES	HIRING CRITERIA
Armor Holdings	<ul style="list-style-type: none"> •Consulting •System integration •Economic intelligence •Protection for assets and intellectual property •Military training 	Unknown	<ul style="list-style-type: none"> •Varies with subsidiary
Executive Outcomes	<ul style="list-style-type: none"> •Consulting •Military training •Strategic and tactical assistance •Sale of military equipment (depending on contract) •Intervention in the field 	500 – 2000	<ul style="list-style-type: none"> •Former members of South African Defence Force (SADF) and South African Police (SAP) (however, some Ukrainian pilots have worked for this company)
MPRI	<ul style="list-style-type: none"> •Consulting •Military training •Logistics management •Peacekeeping •Humanitarian operations •Counter-terrorism 	300	<ul style="list-style-type: none"> •Former U.S. army personnel (superior and general officers)
Sandline Intl.	<ul style="list-style-type: none"> •Consulting •Military training •Operational support •Intelligence support •Humanitarian operations •Strategic communication •Law-enforcement support •Intervention in the field 	Unknown	<ul style="list-style-type: none"> •Former U.S. and U.K. army personnel (combat experience preferred)
Vinnel Corp.	<ul style="list-style-type: none"> •Equipment operation and maintenance •Military training •Technical training •Logistical support 	Unknown	<ul style="list-style-type: none"> •Former U.S. army personnel (officers and NCOs or civilian equivalent, depending on contract and competence)

Table 1: Services Provided by Private Military Companies

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In short, the complexity of services provided is proportional to that of the assignment conferred. This does not prevent a given company from contracting out part of the work to another (e.g.: a consulting engineering firm). Indeed, during the upheavals in Papua New Guinea in 1997, EO was subcontracted by Sandline to provide advice, equipment and training. It should also be noted that the policy adopted depends greatly on the former employers of the staff employed by these companies.

INTERVENTION CONTEXT

The intervention of professional soldiers from private armies is a common historical precedent, as mentioned by Bou-Nacklie (1991), who gives the example of Syrian and Senegalese mercenaries working for France in French-speaking Africa in the years preceding the wave of official decolonization (i.e., between 1947 and 1960). More recently, the companies examined for the purposes of this study have been given a number of assignments, as shown in Table 2.

These assignments have been conducted primarily in countries trying to deal with a civil war or minor (sub-regional) conflict with a neighbouring state.

Judging by Graph 1 (compiled from the work of Misser and Versi, 1997),⁶ the services provided are relatively lucrative.

However, this data is far from complete: of the five companies discussed herein, only Armor Holdings is publicly traded. The others are private, and provide only fragmentary information on their financial position.

POTENTIAL CLIENTS: THE CASE OF AFRICA

These companies stay in business (and thus remain profitable and lucrative) because of a sustained demand for their services. As shown in Table 2, several of their assignments have taken place in Africa. We will try here to understand

why this is so, and at the same time establish a possible profile of the countries and organizations that avail themselves of the services in question.

THE ORIGINS OF AFRICAN ARMIES

African armies were established because of government needs to ensure a minimum of internal security and protect colonial, then national boundaries. In this sense, African national armies often constitute an extension of their colonial counterparts. Benchenane (1983) even goes so far as to suggest the existence of a dialectical association between army and state, as they exert a mutual influence on one another in conditioning power relationships within a national sovereign territory.⁷

Because contemporary African armies have a strong colonial heritage, they are rigid, fairly well organized and extremely top-heavy organizations. However, their high number of conscripts renders the establishment of what we would call professional armies problematic, helping to reinforce a certain amount of dependency on former colonial powers and attendant military cooperation agreements. Two of the many examples of such understandings are France's AMT (technological military assistance) accords and the US's IMET (International Military Educational Training) mechanisms.

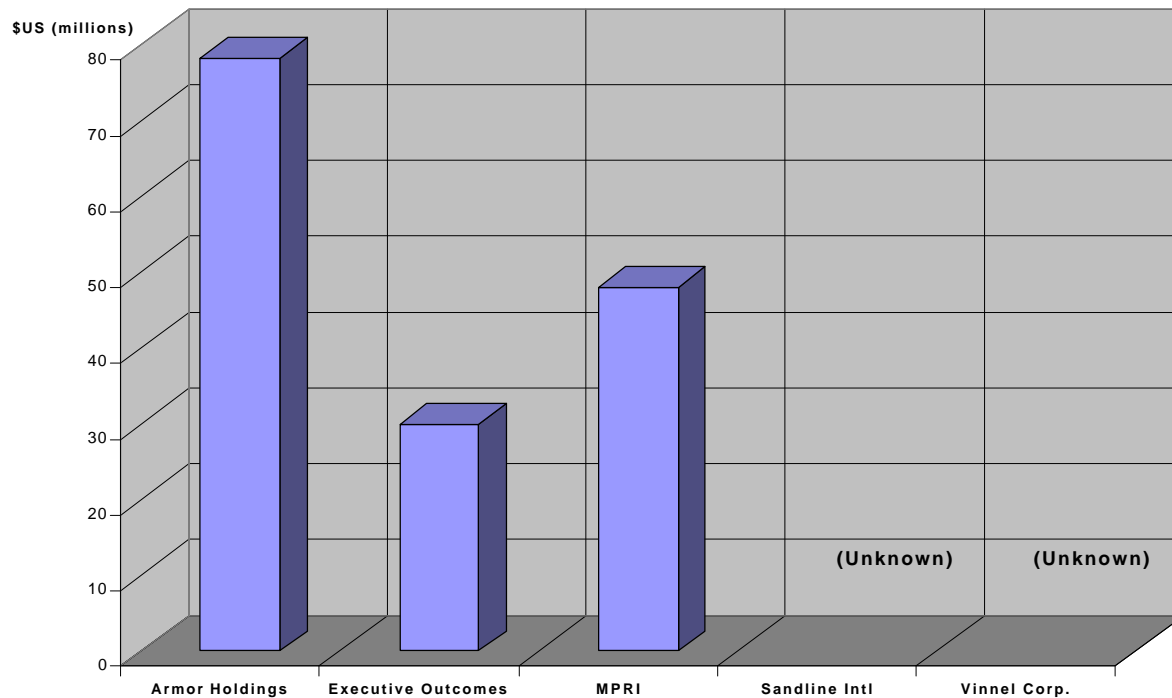
TRAINING REQUIREMENTS

Training for professional soldiers in Africa is made difficult by the high number of draftees and limited military assistance from former colonial powers.⁸ Because the means for implementing a duly established policy and acquiring equipment (rarely available locally) are severely restricted, African armies still depend on cooperative efforts with these nations, and many African superior officers are trained in foreign military schools.

FIRM	ASSIGNMENT (documented)	CODE OF ETHICS	REMARKS
Armor Holdings	•Sale of equipment and consulting services to various U.S. police forces and U.S. Defence Department	Complies with North-American business standards (is publicly listed)	•Portfolio of companies •Operates worldwide •Technological innovations in individual protection equipment
Executive Outcomes	•Angola (1993-1996) •Sierra Leone (1995-1997) •Papua New Guinea (1997)	Works only for legitimate governments and carries out only those assignments that comply with Western security policies	•Ceased operations on December 31, 1998 •Excellent intelligence network •Fringe benefits for employees •Accompanies clients into battle
MPRI	•Croatia (1994-1995) •Angola (1995)	Complies with U.S. foreign policy	•Recognized strategic expertise
Sandline Intl.	•Papua New Guinea (1997)	Works only for legitimate governments and carries out only those assignments that comply with Western security policies	•Excellent intelligence network •Accompanies clients into battle
Vinnel Corp.	•Egypt (1995) •Saudi Arabia (1995-present)	Complies with U.S. foreign policy	•Excellent high-tech expertise •Recognized logistical expertise

SOURCES: Company Web sites, works by Shearer/The Economist, The World Today and African Business

Table 2: Recent Assignments for Private Military Companies



SOURCES: Company Web sites, financial reports and *African Business*

Graph 1: Private Military Company Sales for 1997

Bangoura (1992) acknowledges that, at least in theory, African armies have a mission to defend state sovereignty.⁹ However, domestic training for officers, non-commissioned officers and troops remains inadequate and difficult to implement, as training establishments suffer from a lack of efficient resource coordination. Logistical support (including maintenance) is also still a problem because of the hardships involved in establishing effective organization methods and management practices. Lastly, military cadres do not have sufficient resources to deal with major international strategic or geopolitical issues, or even better-defined regional security matters. Because proper military training (the lack of which was demonstrated by the 1985 conflict between Mali and Burkina Faso, for example) has a direct influence on large-scale operations, it is one of the pillars of any army's defensive capabilities.

A TECHNOLOGY TRANSFER MODEL

In the light of our analysis thus far, the following question must be asked: do the activities conducted by private military providers for their clients constitute technology transfers? Figure 1 provides an interpretation of the relationship between the various stakeholders involved.

Each company maintains a formal relationship with its clients in order to help them meet their goals. However, because of the environmental (political, legal, economic, moral, ethical) constraints in question, the firm may decide not to participate directly, or to participate only to a certain extent. Despite the extremely challenging

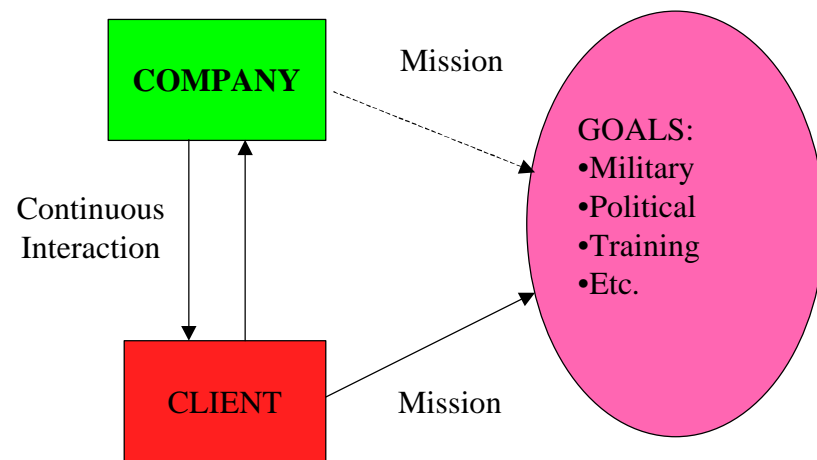


Figure 1: Company-Client Relations

problems encountered when gathering data, we feel able (see following) to answer the formal aspect of the above question in the affirmative, and will model it accordingly.

TECHNOLOGY TRANSFER

In continuing our analysis, we must consider the more general context of international technology transfers, because of the sensitive nature of the issue. First, we should ask ourselves what a technology transfer is. Below is the United Nations definition quoted by Rouach and Klatzmann (1993):

Technology transfer is the transfer of the knowledge required to manufacture a product, implement a process or deliver a service, and does not extend to transactions involving the simple sale or lease of goods.¹⁰ [TR: translation]

This definition is sufficiently precise to include the awarding of licences, communication of know-how, and training in and disclosure of technical practices. Such practices may also involve an organizational, informational and human aspect (Autio and Laamanen, 1995)¹¹.

Generally speaking, it can be said that the problem surrounding the conceptualization of technology transfers is extremely complex. While Boutat (1991) adopts a theoretical and systemic method, Gee (1979) explores the various aspects of the question in the industrialized countries, and Bradbury (1978) studies the issue from the viewpoint of the companies involved.¹² Germidis (1980) centres his approach around subcontracting, which is not without interest, as it deals directly with the international dimension of this activity, but is rather too limited for the purposes of our analysis.¹³ The same holds true for Samli (1985), who interprets technology transfers as a multivariate phenomenon comprising not only technical, but also geographical and cultural variables.¹⁴

THE SECURITY ASPECT

Technology transfers involving security-related (and thus military) issues are always relatively sensitive in nature. As mentioned by Galbraith (1994), some types of needs fall within the exclusive purview of the state.¹⁵ Security is one of those needs; the modern state has a legitimate monopoly over coercion—hence the sensitivity of all military technology transfers. Hope (1983) stresses the importance of transferring the appropriate technologies, an extremely prescriptive argument, especially in view of the observations made by Nau (1985), who discusses the fact that many developing (or, by extension, newly industrialized) countries dedicate a large percentage of their technological resources to military endeavours.¹⁶ Arlinghaus (1984) goes even further, identifying the ideological, political and economic reasons behind the relative long-term increase in military development in African countries.¹⁷

The frenetic pace at which the needs of these countries are growing would indicate that technology transfers constitute a powerful tool for national industrial policy. The relative importance of the military industrial complex to the economies of industrialized countries (France or the United States, for example) is an exceptional example of this phenomenon.¹⁸ On the other hand, given the major difficulties experienced by Brazil's military industrial complex,¹⁹ this tool is sometimes overestimated.

The stakes are different, however, when civil society has collapsed, making way for civil war or conflicts with neighbouring countries. It is in such situations that military technology transfers can truly affect outcome, which explains the need for an adequate model for the phenomenon that can identify success and failure factors. Such transfers comprise a number of critical aspects that, while typical of, are not restricted to them: i.e., the client's

logistical infrastructure and technical, educational and industrial bases; the contribution of the supplier's experts; potential transportation and implementation delays; the national cultural and socio-economic dimensions of client and supplier; and the relevance of the technology transferred. Arlinghaus (1984) lists these factors, but does not specify their importance to the question under consideration here.

MODELS CONSULTED

We have identified three principal models, all requiring some adaptation: i.e., those of Souder (1987), Gilbert and Cordey-Hayes (1996), and Siggel (1985).²⁰ First, let us examine Souder's models for intra-organizational transfers in various phases. Souder (1987) discusses three such models: the stage-dominant model, the process-dominant model, and the task-dominant model. Next, Gilbert and Cordey-Hayes (1996), like Souder (1987), propose a very relevant intra-organizational model aimed at technological innovation through organizational learning. This non-linear model includes five main steps: acquisition, communication, application, acceptance and assimilation. Lastly, Siggel (1985) adopts a less theoretical approach, implementing a consulting-engineering model (CE)²¹. First, he posits that the CE industry's technical knowledge constitutes its main input, which grows as consulting assignments are carried out. The author compares technology transfer to a properly completed learning process, explaining that his research applies to several other fields.²² His approach focuses on the turnkey project mechanism, which he divides into six steps: market and feasibility studies, design and engineering, procurement, project management and implementation, start-up and commissioning, and ongoing training.²³ He concludes that, overall, the growth in the number of assignments has helped increase knowledge inventories

for countries providing or requesting CE projects.

PROPOSED MODEL

Because we do not feel that any one of the above three models makes it possible to adequately deal with the complexity of the subject of this analysis, we will use all three in conjunction. The fact that they are highly complementary allows them to be incorporated into a more general, in-depth model of military technology transfers, with private military companies on one side and national armies on the other.

We have retained Souder's process-dominant model because of its ability to integrate the aspects related to our study, as well as a certain underlying balance between stakeholder interaction and hierarchy. Gilbert and Cordey-

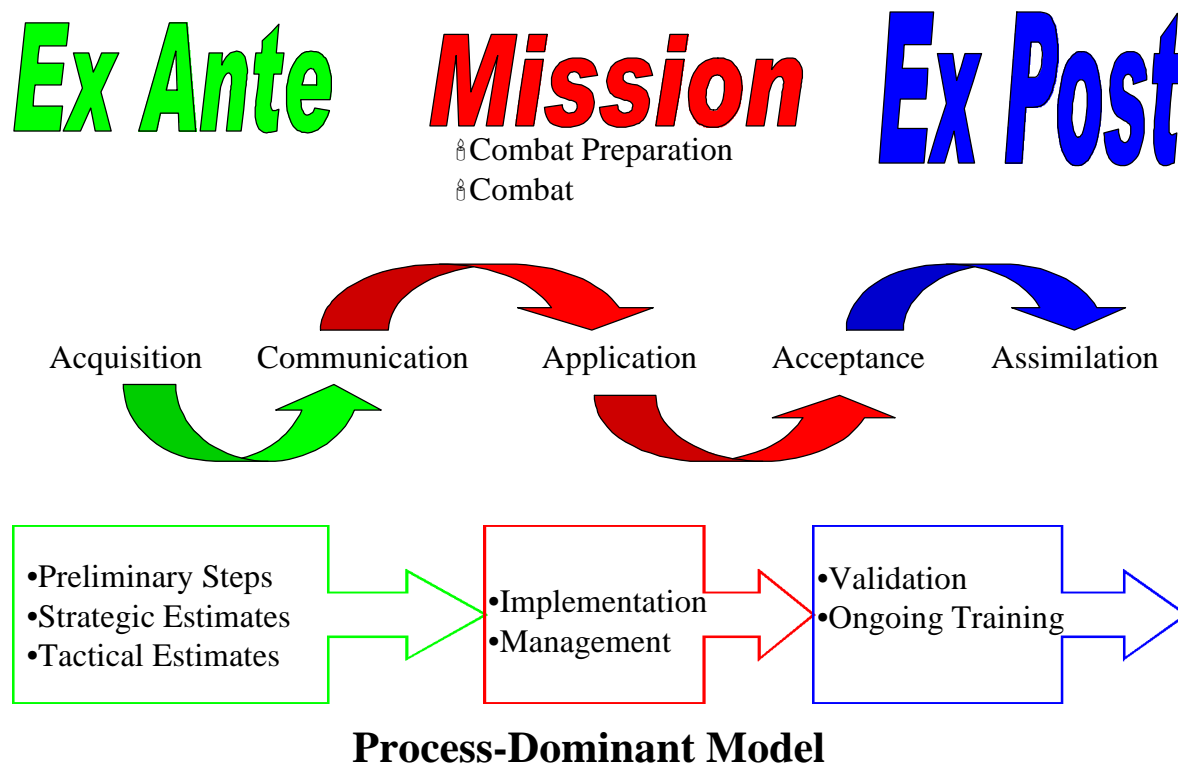
Hayes (1996) offer a general framework in which to divide and systematize the steps involved in transferring military know-how along a continuum that takes account of the client's level of learning. Siggel (1985) presents a model that covers the consultation aspect, which, in our view, applies very well to private military providers, given the scope of their activities.

An examination of Figure 2 shows military technology transfer taking place in accordance with a process-development logic (Souder, 1987). First, *ex ante* we see that technology is acquired and communicated (Gilbert & Cordey-Hayes, 1996). This corresponds to the conduct of preliminary studies and the establishment of strategic and tactical estimates and contingency plans (adapted from Siggel, 1985). Second, the combat-preparation or hostility-pursuit mission *per se* witnesses the implementation (Gilbert

and Cordey-Hayes, 1996) of previous plan-completion and -management efforts (adapted from Siggel, 1985). Third, *ex post*, acceptance and assimilation (Gilbert and Cordey-Hayes, 1996) are conditional upon the validation of knowledge and ongoing training (adapted from Siggel, 1985).

At this point, the impact of the critical factors represented by the client's logistical infrastructure and technical, educational and industrial bases; the contribution of the supplier's experts; potential for transportation and implementation delays; the national cultural and socio-economic dimensions of client and supplier; and the relevance of the technology transferred must be evaluated, in order to optimize the chances for a successful transfer.

Table 3 shows our evaluation of the impact of such critical factors (Arlinghaus, 1984) on the success of the transfer—factors



NOTE : Adapted from Souder (1987), Gilbert and Cordey-Hayes (1996), and Siggel (1985)

Figure 2: Integrated Military Technology Transfer Model

FACTOR	EX ANTE	MISSION	EX POST
Technical, Educational and Industrial Bases	High	Average	Average
Logistical Infrastructure	Average	High	Average
Contribution of Foreign Experts	High	Average	High
Potential Delays	High	High	High
Cultural and Socio-Economic Dimensions	High	Average	High
Relevance of Technology	Average	High	High

Table 3: Impact of Arlinghaus's Critical Factors (1984) on Integrated Technology Transfer Model Phases

that must be considered by both the company and its client. Because of the high degree of strategic uncertainty stemming from an unequal balance of information between the client and the latter's potential rivals, we did not consider any factor as low in impact.

APPLYING THE MODEL

EO's intervention in Sierra Leone in 1997 (Shearer, 1998) can be interpreted with the aid of the model presented above.²⁴ In accordance with the diagram in Figure 1, the government of Sierra Leone hired EO, both players interacting to pursue the goals of the former—i.e. to organize, train and provide equipment to a military force and enable it, not only to stabilize civil society, but also to counter the threat represented by the rebels of the Revolutionary United Front (RUF). Thus, ex ante, the government acquired physical resources (in particular Russian equipment that was easier to obtain and thus to maintain, as well as being less costly) and strategic and tactical know-how for use in a ground war with air support. EO trained national-army officers and troops to use equipment and implement a duly established military policy. During the mission, which lasted 22 months (from 1995 to 1997), EO regularly provided government armed forces with support when it came time to apply that policy and use the new resources in a theatre of operations. EO was also involved in overseeing the

implementation of contingency plans established ex ante. The company taught its client to use fighter aircraft for ground attacks and helicopters to ensure the mobility of infantry units assigned to destroy the enemy in the bush. It also gave government forces the advantage as regards intelligence and subversion operations. By the end of the mission, EO was able to claim outright victory in keeping with its conflict-resolution philosophy: the RUF had beaten a retreat, allowing the government to hold elections. EO lost four of its members in combat; government losses were undetermined. Ex post, once operations were terminated EO left the country, without bothering to validate learning or provide for the ongoing training of government forces (given the high costs of a civil war, the government probably did not have the resources required to undertake such measures). As a result, in 1998, renewed hostilities, coupled with the enormous difficulties experienced by government forces in maintaining their strategic advantage, enabled the rebels to gain ground.

CONCLUSION

We have examined the complex nature of the phenomenon that was studied and modeled. First, we saw that, despite the state's monopoly on legal coercion, governments tend to specialize in high-

intensity conflicts and experience difficulty acting in low-grade conflicts, whether their armed forces are operational or not. Private military companies thus provide governments with strategic and tactical expertise, sometimes directly in the theatre of operations, and are able to intervene on behalf of their clients in a number of potential conflict situations. These services are often extremely lucrative.

Second, we attempted to identify potential clients for this type of service, as well as the reasons for using private military forces. In so doing, we focused on the example of African armies, which exist largely because of the need for former ruling powers to protect their colonies. Even today, these forces are often the only organized bodies in their respective countries. However, because of the scarcity of good military schools and the high numbers of draftees concerned, training needs are considerable, making for significant operational difficulties.

Third, a model for the technology transfers between private military companies and client state armies cannot be established without first determining the nature of the transfer in question. According to Rouach and Klatzmann (1993), technology transfer constitutes a transfer of knowledge, thus including de facto the concept of know-how. Applying this concept to the field of security means we must be aware of the sensitivity of any attendant technology transfers: military technological transfers involve a number of critical dimensions that may compromise success if not taken into consideration. Keeping this in mind, we presented three principal existing models, the pertinent features of which we then incorporated into an "integrated" version. From Souder (1987), we took a process-dominant orientation. Gilbert and Cordey-Hayes (1996) provided a phase-formalization method that represents a powerful tool for inclusion in our integrated model, given that it is perfectly consistent with the attributes borrowed from Souder (1987). Because these three authors are characterized by a rather intra-organizational logic, we then turned to the contribution made by Siggel (1985),

whose model allowed us to make the extremely inter-organizational nature of our integrated model consistent with the intra-organizational perspective of the other authors in question. Then, as shown in Figure 2, we examined the main aspects of military technology transfers carried out by private military providers,

applying our model to EO's intervention in Sierra Leone in 1997.

Given the sustained demand for the services offered by these companies, we can ask the following questions: In the final analysis, does the use of private military companies constitute a way of

resolving low-grade conflicts? And can it be effectively substituted for that of conventional peacekeeping forces?



ENDNOTES

1 National Defence, Publication A-PD-050-0D1/PG-006, *War and the Military Profession* (Ottawa: Officer Professional Development Program (OPDP 7), 1996), p. 2C-3.

2 We are disregarding here counter-terrorist units or those in charge of clandestine operations, as these are, by definition, impossible to deploy on a large scale, having only a limited number of members who have previously undergone specialized, extremely rigorous training.

3 By the expression "low-grade conflicts", we mean guerilla wars, civil wars limited to national borders, and other similar conflicts.

4 This being a violation of the principle of non-interference in the affairs of a sovereign state. For a more in-depth discussion of the problems of extraterritoriality and the use of traditional military resources in low-grade conflicts, see David Shearer, "Private Armies and Military Intervention," *IISS Adelphi Paper 316*, (February 1998), www.sandline.com.

5 Executive Outcomes ceased operations on December 31, 1998, further to condemnation by the South African government.

6 François Misser and Anver Versi, "Soldiers of Fortune," *African Business* 227 (December 1997), pp. 8-14.

7 Mustapha Benchenane, *Les armées africaines* (Chatillon-sous-bagneux, France: Publisud, 1983), pp. 24-25.

8 Benchenane, pp. 129-159.

9 Many are actually dealing with a political client-centred approach that occasionally prevents them from carrying out this policy. See Dominique Bangoura, *Les armées africaines (1960-1990)* (Condé-sur-Noireau (France): Centre des Hautes Études sur l'Afrique et l'Asie Modernes, 1992), pp. 43-131.

10 Daniel Rouach and Joseph Klatzmann, *Les transferts de technologie* (Paris: Presses Universitaires de France (Collection Que sais-je?), 1993), p. 10.

11 Erko Autio and Tomi Laamanen, "Measurement of Technology Transfer: Review of Technology Transfer Mechanisms and Indicators," *International Journal of Technology Management* 10.7/8 (1995), pp. 643-664.

12 See Alain Boutat, *Les transferts internationaux de technologie* (Lyon: Presses Universitaires de Lyon (Collection Science des systèmes), 1991); Frank R. Bradbury, *Technology Transfer Practice of International Firms* (Alphen Aan Den Rijn (The Netherlands): Sijthoff & Noordhoff, 1978), and Sherman Gee, *Technology Transfer in Industrialized Countries* (Alphen Aan Den Rijn (The Netherlands): Sijthoff & Noordhoff, 1979).

13 Dimitri Germidis, *International Subcontracting, a New Form of Investment* (Paris: Development Centre of the OECD) 1980.

14 Coskun A. Samli, ed., *Technology Transfer: Geographic, Economic, Cultural, And Technical Dimensions* (Westport, CT): Quorum Books, 1985).

15 John Kenneth Galbraith, "The Autonomous Military Power: An Economic View," in Manas CHATTERJI, Henk JAGER and Annemarie RIMA, *The Economics of International Security* (NY: St-Martins Press, 1994), pp. 9-13.

16 Hope and Nau tacitly agree here, both making pertinent remarks on the issue, although the former places his analysis within the context of the new international economic order proposed at the time by the United Nations, and the latter adopts the bipolar logic of the Cold War, an approach that experienced new popularity under the Reagan administration. Readers will note that Hanrieder touches on the technological dimension of acquiring military resources, but focuses too much on the nuclear armament issue to be quoted in our study. See Kempe R. HOPE, "Basic Needs and Technology Transfer Issues in the New International Economic Order," *American Journal of Economics and Sociology* 42.4 (October 1983), pp. 393-403; Henry R. NAU, "International Technology Transfer," *The Washington Quarterly* 8.1 (Winter 1985), pp. 57-64; and Wolfram Hanrieder, ed., *Technology, Strategy, and Arms Control* (Boulder, CO: Westview Press, 1986).

17 Bruce E. Arlinghaus, *Military Development in Africa: The Political and Economic Risk of Arms Transfers* (London: Westview Press, 1984), pp. 55-82.

18 We are not claiming to judge the merits of this point of view, represented here by Chesnais. See François Chesnais, *Compétitivité internationale et dépenses militaires* (Paris: Économica, 1990).

19 According to Conca, the causes for this state of affairs are both economic and institutional. See Ken Conca, "Between Global Markets and Domestic Politics: Brazil's Military Industrial Collapse," *Review of International Studies* 24 (1998), pp. 499-513.

20 See Myrna Gilbert and Martyn Cordey-hayes, "Understanding the Process of Knowledge Transfer to Achieve Successful Technological Innovation," *Technovation* 16.6 (1996), pp. 301-312. W.E. Souder, "Technology Transfer: From the Lab to the Customer," in W.E. Souder, *Managing New Products Innovations* (Lexington Books, 1987), pp. 217-238. Eckhard Siggel, "Learning by Consulting: A Model of Technology Transfer Through Engineering Consulting Firms," *Canadian Journal of Development Studies* 6.1 (1985), pp. 27-44.

21 The fact that this model is heuristic and not easily tested, as admitted by Siggel himself, in no way makes it less relevant in the case under discussion here.

22 For example: science, politics or law

23 Siggel proposes a mathematical function for calculating the know-how accumulated within a given country. This function is not illustrated or used here, as it is not in keeping with the goals of this study.

24 David Shearer, "Outsourcing War," *Foreign Policy* 112 (Fall 1998): 68-81 and "Can Anyone Curb Africa's Dogs of War?" *The Economist* Jan. 16-22 (1999), p. 41.

CHANGING STRUCTURES FOR TOMORROW'S LEADERS

Sergeant Arthur Majoor

What roles will non-commissioned officers (NCOs) play in the Army of Tomorrow and the Army of the Future? This was one of the questions the "Symposium on the Non Commissioned Officer in the Future Army" sought to examine through presentations and working groups. The Symposium was held at Queen's University, Kingston in June 1999. The fifth panel, in which I participated, examined the following questions:

- ✦ What is the appropriate relationship between officers and NCOs in units?
- ✦ Should we narrow or widen the gap in the traditional allocation of duties, responsibilities and direct leadership of soldiers in garrison and in operation?¹

The solution derived by the majority of the working group advocated greater teamwork and professional development, while maintaining the status quo between ranks, as the appropriate solution for the Army of Today.² Implementation of these and related solutions from the other groups would do a great deal to improve the short-term performance of the Army by raising the professional calibre of the NCO corps. I believe this does not address the profound changes due in the Army of Tomorrow, nor the radical changes that will be faced in the Army of the Future. The Army of Tomorrow is defined as the Army of 5 to 10 years from now, and the Army of the Future is defined as the Army of 11 to 25 years from now.

THE END OF THE NCO?

This paper will argue that the idea of separate officer and NCO leadership

categories will disappear. Changes in technology, social structure, education and business methodologies will affect the way soldiers are recruited, trained and selected for advancement. It will also affect the way the Army operates in the garrison and in the field. While the idea of the end of NCOs may seem radical, this is seen as a logical extension of existing trends and how our current system is the basis for such a change.

FROM NCO TO "UNDEROFFICER": TECHNOLOGY

The duties and responsibilities of the NCO have grown enormously in even the past ten years. With the end of the Cold War and the move towards non-traditional roles, combat arms NCOs are no longer simply practitioners of minor unit tactics or logisticians dealing with "beans and bullets." An infantry sergeant deployed to Kosovo must be versed in those arts, plus have knowledge of civil-military co-operation, media relationships, propaganda and counter propaganda, local history, culture and negotiation techniques. The search for war criminals and war crimes evidence will also require the skills of a police officer. The sergeant will need to expand his military knowledge to deal with unconventional threats such as suicide bombers, guerrilla activity or infiltration tactics that might be practiced by Serb military and para-military forces attempting to neutralize NATO air power.

Although part of a larger force structure, the force strength to space ratio and the nature of the mission will ensure that the platoon will often be

operating in a dispersed fashion. The section commander, without the time or ability to refer to higher authorities, will often make critical decisions based on his or her own knowledge and abilities.

In the Army of Tomorrow, the section, vehicle or detachment commander will have additional capabilities based on technology. The most predictable development is the increase in communication capability, both of voice and data through the Tactical Command, Control and Communications System (TCCCS). Communications devices will resemble Personal Digital Assistants (PDAs) like the 3COM "Palm Pilot." Individual armoured vehicles and artillery pieces (tube or rocket) will be able to use sensors both individually and co-operatively in order to "see" the battlefield. Cybernetic assistants, possibly resembling bomb disposal robots of today, may be available and configured as load carriers ("ammo caddies"), mine detectors and remote sensor or weapon platforms.³

Weapons will have greater ranges, destructive power and built-in sensor capability, forcing units to operate in a more widely dispersed fashion. In low intensity operations, individual sections or vehicles will be able to project their influence over a wide area. Higher intensity operations will be characterized by data fusion,⁴ where units seek out targets with all the sensor capability available and determine the best means of attack once the target is discovered. An infantry section discovering an enemy weapons emplacement might choose to "hand off" the attack to an armoured fire support

vehicle, which will destroy the target with a sensor fused top attack shell. An artillery forward observer alerted to a guerrilla patrol by a stand off sensor, may attack with a fiber optic guided missile or pass data to an infantry patrol attempting to capture the enemy.

The combat support specialist will also have access to many of the tools described. A transport driver will be able to plot a route and deliver goods across all types of terrain by day or night, using vision aids and guided by an onboard Global Positioning System. The load will be dispatched following automatic reporting by the "F" echelon.⁵ To minimize vulnerability, vehicles will move as individuals or small packets, avoiding massing in delivery points. A medic may have a robotic device to assist, not only as a stretcher-bearer but to monitor the casualty and even to perform some first aid and stabilization procedures.

In the Army of the Future, these capabilities will be expanded even further. Cybernetic devices will exist in many sizes, from insect sized robots⁶ to autonomous fire support weapons, transport vehicles, ships and aircraft. The soldier will probably resemble a "Starship Trooper," of the Robert A. Heinlein novel,⁷ encased in a powered "battle armour" bristling with weapons and sensors. Advanced biological techniques derived from sports medicine will be used to monitor the soldier and provide programs of drugs, nutrition and exercise to maximize strength, endurance and alertness. Sensor fusion will expand to incorporate a greater range of inputs, including space-based sensors, as well as employing an even wider range of the electromagnetic spectrum. Weapons will have expanded capability, possibly including the in-flight ability of breaking off to attack a higher value target and to reconfigure the warhead to deliver the maximum damage to the target or abort the attack if required.

Service support will also be dispersed even to the point of having some systems able to "live off the land" using solar energy or other natural resources. Automatic reporting and supply pull by units or individuals will be the common method of support. Some major weapon systems may also become disposable to simplify support, for example, a multiple rocket launcher that is emplaced and automatically registered to the fire control network. Once used, all that will be left will be empty fibreglass tubes and a cheap computer, neither of which will be worth recovering or reloading.

Operations may be characterized by a "swarm of bees" approach. As units come into contact with the enemy, they provide sensor input to adjacent units that can engage as appropriate according to the commander's desired end state. To continue the analogy, higher staff functions would be to position and maintain the "hive" by providing overall direction of the expected end state, blocking out areas of battlespace for units to operate in and establishing the logistics tail for the operation.

While most of these projections may seem very "science fiction," they are logical extrapolations of existing technology. Each step from the Army of Today to the Army of Tomorrow and the Army of the Future endows lower and lower levels of troops with greater and greater capabilities. Leadership responsibilities will correspondingly increase as well. A Coyote recce vehicle can "see" an area similar to that covered by a Second World War battalion. The tank or fire support vehicle commander of tomorrow will have that capability mated to a weapon system that can strike out to the same distance. The infantry section of the future, with their cybernetic assistants, will have similar capabilities and will need to be very skilled to use the systems to maximum those capabilities. In the Army of Tomorrow, line infantry will have to be

trained to the same standard as Rangers or airborne soldiers are today. In the Army of the Future, a section might resemble a special forces team of today in terms of size and capability.⁸

As time passes, potential enemies will also be endowed with increasing capabilities, including weapons of mass destruction and electromagnetic weapons that can damage systems at the speed of light. The time to make decisions and perform actions before the enemy can achieve his aim will be correspondingly decreased.

The increase in small unit capabilities and compression of reaction time will seriously overload any sort of centralized command system. A command and control structure based on directive control and using horizontal or flat hierarchies will have the speed and flexibility to deploy units in an effective fashion.⁹ In the Army of Tomorrow, command and control nodes may take the form of neural networks and battle group servers to handle the immense quantity of data. In the Army of the Future, such nodes themselves will be highly vulnerable and replaced by dispersed computing. This ensures that no program resides in any individual machine.¹⁰

The traditional divisions of responsibilities will vanish. Leaders will be able to make and execute decisions based on common inputs from sensor systems, using directive control and common doctrine to guide them. Many administrative duties traditionally carried out by NCOs will be increasingly automated, no longer requiring the dedicated attention of many people.

THE TALENT POOL

The demographic pool for future soldiers is changing. Smaller numbers of people overall will exist in the required age groups. A larger percentage of the overall population will have post secondary education. Their

experiences, values, education and life skills will reflect the sort of country Canada will become in the future. A simple extrapolation of these trends is that the Army (and Armed Forces as a whole) will be fighting for a piece of a smaller pie of desirable recruits.¹¹

Another factor often overlooked is that many people do not view the Armed forces as a desirable form of employment. They may feel that there is not enough prestige or future opportunity in following a military career, or that the Armed Forces is a symbol of oppression. This further limits the available pool of recruits. Even today we encounter the effects of the changes. Many Reservists are using their pay to put themselves through college or university. Regular Force recruits are increasingly well educated. The modern soldier is defined by learning and training rather than by "birth" or "soul." The military is now a sphere of merit rather than birth. In my experience I once encountered a reserve sergeant and lieutenant serving together, who were both enrolled in the same university, taking the same courses and even living in the same fraternity house.

During their careers, many soldiers will attempt educational upgrades, both through military courses and on their own, either through distance learning or attending educational institutions. Not only does this further level the playing field between officers and NCMs but also it is a form of self-selection, demonstrating who is deeply motivated and self-disciplined. In some fields, this leads to soldiers gaining valuable skill sets and taking them to the civilian market, where pay and conditions of service are better. Pilots and computer network administrators are two well-known occupation groups demonstrating this trend.¹² These highly educated soldiers will have the knowledge base to operate in the sort of scenarios described above.

Traditional ideas of training will have to be modified to reflect both the type of soldier and the type of working environment soldiers will encounter. Training must stress independent thought and action under adversity. Teamwork will be in small unit environments (all units will be getting smaller), and various technically trained soldiers will be needed in their trades.

Trades people will require different training tracks, emphasizing trade related skill sets.¹³ Leadership training will be tailored towards team building and team leadership, but not at the sort of level the leadership candidates will require. Flexible and changing work groups require different leadership techniques than fighting teams based around cohesive small groups.

SELECTION AND TRAINING

The current enrollment system is a basis to find the leadership resources needed for the Army of Tomorrow and the Army of the Future. Norman Dixon's book, *The Psychology of Military Incompetence*,¹⁴ postulates there are common traits that characterize an unsuccessful leader. The corresponding argument is there are common traits for a successful leadership candidate as well. Special aptitude and psychological testing at recruiting centres can be used to identify potential leaders with these traits and channel them into the leadership pool. Since people develop at different rates, re-screening of soldiers should take place from time to time throughout their career in order to identify "late bloomers."¹⁵

Current training can be used as the basis for doing away with the NCO/officer division. The Phase I and II of officer training are almost identical to the Junior Leadership Course. A unified leadership course could be easily drawn up from the merger of the two. In a similar fashion trades training can be built on skill sets, and career progression

based on personal potential and successful completion of training blocks.

Promotion will be through the successful performance of duties. Skilled section/vehicle/detachment commanders will be groomed and trained for the next step. As their careers progress, the best will be given the opportunity to advance according to their maximum potential. This is similar in some respects to the Israeli Defense force, where every soldier must do time in the ranks and only the best are invited to take commissioning. The Rwandan People's Army also used a similar system during their civil war, with leaders able to advance in a smooth progression, from section commander to battalion commander.¹⁶ Leaders who were unsuccessful at any level were transferred from the "combat arms" to a service support role, thus a platoon commander who was found lacking as a company commander might become a captain in the signal corps.

FORCE SEGMENTATION

The Army of Tomorrow and the Army of the Future, relying as they do on small numbers of highly trained soldiers augmented by cybernetic devices, will be expensive to raise, maintain and support. The Army (and, by extension, the Armed Forces) will have to be split between a small, mobile force capable of taking to the field right away and a larger field force capable of undertaking prolonged operations after a period of outfitting and preparation.

Reservists will be an important part of the field force and have to be selected and trained in the same fashion as their Regular Force counterparts. To ensure that the Reservists will inter-operate successfully reserve units will be organized as "training regiments," equipped with the same number of inexpensive computer and communication devices as regular units. Training on simulators will be necessary

to gain and maintain proficiency with the expensive robotic devices. To reduce costs, robotics would likely be pooled in training bases and held in long term storage facilities until needed.

Reservists will be valuable as augmentation in civil emergencies such as the Manitoba Flood and the Ice Storm, where there is need for organized bodies of troops to augment the authorities. They will also be deadly on a high tech battlefield when issued their compliment of robotic weapons and networked into the battle group. Reservists may not be as valuable in low- to mid-intensity operations other than war (OOTW) missions such as peace enforcement due to restricted opportunities for specialty training required for these operations. Regular Force soldiers will have the extra time to receive language and cultural indoctrination training required for such missions.¹⁷

THREE LEVEL MODEL

In order to accommodate these changes, I believe the structure of the Army should change to reflect what is happening. I propose the “three level” model, which would be comprised of a leadership level, a technical level and a (for want of a better word) follower level.

The leadership level would encompass leaders from section/vehicle/detachment commander on up; it would reflect the growing leadership and decision-making requirements and capabilities of soldiers in those positions. The people who would occupy those slots would probably be military professionals seeking career opportunities and long term service. The leadership level would be subdivided between “regimental” and “general staff.” The division between these two leadership types would take place later in the career. This division would involve screening and

competitive testing (self-selection, Officer Professional Development Program scores, competitive exams, evaluation reports, etc.). The regimental leader would be inclined to progress through the leadership positions in the regiment or arm of service without aspiring to positions beyond. A general staff leader would have the ability and the desire to work at an operational or strategic level and be put through extra training to do so.

The technical level would encompass the skilled trades people who make the systems work. This level would be closest to the traditional idea of the NCO as a fountain of experience. The pay and promotion system would reflect the fact that a trades person might acquire increasing levels of skill without a corresponding increase in leadership responsibility. Indeed, the trades might be organized into work teams, with specialists from different disciplines attacking facets of the same task. Team leadership would be based on the type of task to be performed, with the resident expert for the task being the team leader. For example, if a vehicle were in need of body repair, the vehicle technician would be in charge and the power train technician and the programmer would work under the vehicle technician’s direction.

There would also be some sort of skilled trades entry plan that would allow qualified people to enter the Armed Forces at an appropriate pay level while they receive military training. This plan would also have to be flexible enough to accommodate people who are in the Army for one contract, work and train in the civilian world for several years, then rejoin the Army with an expanded skill sets in their trade.

Followers would be the new soldiers at the private/recruit level who are undergoing basic training or are just new to their jobs. These soldiers would

be monitored and screened for learning potential and leadership ability.

CONCLUSION

“What is the appropriate relationship between officers and NCOs in units? Should we narrow or widen the gap in the traditional allocation of duties, responsibilities and direct leadership of soldiers in garrison and in operation?”

In the past, officers did the thinking, planning and commanding, while NCOs implemented the plan, controlling, training and leading large numbers of inexperienced soldiers. As I have tried to demonstrate, the traditional allocation of duties is being erased by changes in technology, which continue to increase the tempo of the battlefield and lower the level of responsibility for critical decisions. Technology also increasingly automates routine tasks, such as resupply, increasing speed and accuracy while removing the need for dedicated human intervention.

These factors change the decision making hierarchy, flattening the layers of command in order to speed the flow of information. Why disseminate orders through many layers when they can be directed to the appropriate leaders at once through a PDA? Leaders can use directive control to explain the expected end-state to sub units, and then lower level leaders can develop relevant plans. “Horizontal” linkage will be of utmost importance to front line units as they share information and combine resources to engage the enemy.

The pool of available talent will also be shrinking, as the population ages and larger segments of the population view the Armed Forces as an undesirable employer. In the Army of Tomorrow and the Army of the Future, a smaller number of people will have to do as much as or more work than the Army of Today. Bottling up a large part of the

force in “middle management” is simply not a good use of resources. Small numbers of highly trained soldiers doing complex tasks is slowly but surely replacing the NCO in the traditional role of directing large numbers of soldiers to do simple tasks. Self-motivation by individuals should be expected, especially when the level of education and knowledge of the average soldier is constantly expanding.¹⁸

I believe the ultimate change is selecting and training people for direct leadership positions. Leadership in the smaller, more capable Army of Tomorrow and Army of the Future will encompass what is traditionally thought of as command and control. The merging of the two functions will collapse the distinction between an officer and NCO in terms of duties, responsibilities and especially direct leadership. The leader of the future

should be grounded in experience based on leading troops at the section, vehicle or detachment level. This is the most difficult and demanding of all leadership tasks, and people who prove themselves here are indeed worthy to advance to higher levels of responsibility.



About the Author . . .

Sergeant Arthur Majoor holds a Business Finance diploma from Fanshawe College, and is currently enrolled in the MCSE (Microsoft Certified System Engineer) course. He joined the Canadian Forces in 1981, and served in the Regular Army until 1986 before transferring to the Reserve. His operational service includes a tour in Cyprus, and disaster assistance during Operation RECUPERATION, Ice Storm '98. Sergeant Majoor is currently employed as the G6 IT Administrator with 31 Canadian Brigade Group Headquarters in London, Ontario.

ENDNOTES

1 Symposium on the Non Commissioned Officer in the Future Army, Queen's University, Kingston ON, 28-29 June 1999.

2 Recommendation of the Fifth panel, Symposium on the Non Commissioned Officer in the Future Army, Queen's University, Kingston, ON, 29 June 1999.

3 George and Meredith Friedman, *The Future of War* (Crown Publishers, 1998), p. 388.

4 Friedman, pp. 382-385. This section describes data fusion in the context of an Infantry section, but the principle can be expanded to include every weapon and sensor in that block of battlespace.

5 Capt. B Weins, “Digitization of the Battlefield: An Armoured Perspective,” *Armour Bulletin* 29, 2 (1996): p. 10. The description of TBCS and Vetrionics shows how automatic “pull” systems could be configured.

6 Phil Scott, “A Bugs Lift,” *Scientific American* (April 1999): p. 51. A description of research into insect sized flying robots.

7 Robert A. Heinlein, *Starship Troopers* (Putnam's Sons 1959, reference pages Ace 1987), pp. 79-85. A description of the powered suit.

8 Friedman, pp. 391-392.

9 Friedman, pp. 389-390. This section also demonstrates the two-way nature of this change, since the highest level commanders can also “see” the battlefield from the section point of view, if desired. The risk of micromanagement is great.

10 <http://plan9.bell-labs.com/plan9/index.html> (access date?). Plan 9 is an example of a current distributed computing initiative.

11 Capt (N) A. Okros, “The future Soldier,” Symposium on the Non Commissioned Officer in the Future Army, 28 June 1999, Queen's University, Kingston, ON.

12 Okros. The change in attitude was described as moving from a “Military Professional” to a “Professional in the Military.”

13 Okros. This was described in the paper as moving towards “applying situation specific competencies of a disciplined team to achieve the objective.”

14 Norman Dixon, *On the Psychology of Military Incompetence* (Random House, 1984)

15 Sgt. T. Garrard, “What do NCOs Think They Should and Can Do?” Symposium on the Non Commissioned Officer in the Future Army, 28 June 1999, Queen's University, Kingston, ON.

16 Maj. B.P. Beardsley, “Section Attack-the Double Envelopment,” *Infantry Journal* (Winter 1995): pp. 8-16. The assessment of leaders and advancement through the ranks is covered on pages 9 and 10. Leaders had to be successful, husband resources and minimize casualties. As well, an OJT process was carried out throughout the chain of command, ensuring the successful leaders would train their eventual replacements.

17 Dr. Donna Winslow, “A View from Outside the Door,” Symposium on the Non Commissioned Officer in the Future Army, 28 June 1999, Queen's University, Kingston, ON. This presentation suggested there may be a need for a “split skill set,” one for high intensity, high tech warfare and a “people skills” set for OOTW.

18 Winslow. The reasons that motivate people to join and serve in the military need to be examined. Do people join because of a desire to serve the nation, experience adventure or have a stable, well paying job? Each new generation of soldiers will probably have these desires in different proportions.

RESTRUCTURING THE ARMY OR THOUGHTS ON RESTRUCTURE FROM THE BOTTOM UP

Chief Warrant Officer G.M. Clough, CD

The intent of this paper is not to dwell on how we did business in the past nor on how we were once structured. There are several libraries dedicated to these very topics. Suffice it to say that prior to and during the First World War we were structured in a particular fashion. The same can be said for the time before, during and after the Second World War, as well as during the Korean and Cold War periods. This is not a discussion of yesterday's recruit (commissioned or non-commissioned), nor of equipment and how it has evolved from springs and levers to electronics and logic chips. Most of all, this paper does not study past doctrine although it may be commented upon. The bottom line is that the Canadian military is down-sizing, and out of funds, therefore; things must change.

AIM

The aim is to offer ideas on how we can better prepare our people and our institution for the future.

INTRODUCTION

To understand the logic of this paper you have to put your hat badge in your pocket. The following areas are looked at in depth:

- * selection and maintenance of the aim;
- * doctrine;
- * structure;
- * reserves;
- * recruiting;
- * training; and
- * equipment.

SELECTION AND MAINTENANCE OF THE AIM

To build a functional army one first must know the aim. It is not evident that the politicians, nor we in the armed forces, have the aim in sight, nor does it appear likely that it will come into focus in the near future without a large push from us, the serving members. Therefore, the first item on the agenda is to secure a clear aim and then to press for the means to maintain it. We need a strategic plan in order for us to properly serve our country now and into the future.

DOCTRINE

We tend to live in a fantasy world. We continue to spend time and resources discussing and studying organizations and groupings at a strategic level that we have not been at in years and most probably will not visit again in the foreseeable future. Currently we are hard pressed to put a brigade group into the field and certainly could not sustain one for any length of time. Our doctrine is dated and requires a significant change. Our equipment **does not** match our doctrine. We tend to be training to old doctrine while writing new doctrine, all the while changing our equipment and manning levels. This makes no sense whatsoever.

We no longer fight in the same manner as in the past on the battlefield yet we continue to hold onto old ideas. We still look at countries that are currently our allies as the *Red Force*. We are wasting time and money preparing our senior leadership for positions they will never hold. Doctrine should reflect reality, not fantasy.

The infanteer is the backbone of the army and not just a rifleman charging from trench to trench. Today's tactics have changed the relationship between the infantry, armoured and close support artillery. All these changes mean that we need to train these groups as combat teams/groups instead of as three separate entities: infantry, armoured and artillery. Why are not all mortar men gunners? Conversely, why are not all gunners mortar men? Both systems lob shells (albeit some farther than others), therefore the knowledge and skill required to lob the shell is probably very similar. The infantry and armoured are now operating the same Light Armoured Vehicles (LAVs): Are they then the same people? Infantry pioneers and combat engineers share much knowledge and many skills: Are they also the same people? These examples and others indicate that perhaps we need to begin to look at changing our training doctrine. We tend to cling to the idea of one-dimensional soldiers at the same time that we are building multi-skilled soldiers. The combat teams/groups live and fight as a team therefore logic dictates that they should train as a team and be deployed as a team. Our training schools need to bring the groups together at the front-end of training and develop them as a team throughout their careers. This means changing our tactics schools. No longer are armoured tactics just armoured tactics and no longer do infantry tactics belong only to the infantry. The tactics need to reflect the team and need to be taught to the team players in the *same* grid square, in the *same* classroom, by the *same* cadre. The success of the team hinges on the

complete understanding and acceptance of the tactics. Mobility, portability, flexibility, punch and speed are critical to the success of any offensive or defensive action. Well-kitted and trained combat teams enhance our ability to succeed. The cap badge they are wearing is irrelevant.

Service Support is a fluid group that continually changes without any real sense of direction. Recently, we have gone from self-sufficiency to the general support/close support split while still keeping the supply chain project in forward gear. We need to stop and reassess our purpose. Who is driving the car? Change is not a bad thing but we cannot make intelligent change with ten hands on the steering wheel. We don't talk to each other as we surge ahead with a particular new initiative; and that's expensive. We need to work together, not individually.

In simple terms our job is to support a brigade group (at the most two) in the field, regardless of location. We delude ourselves when we discuss corps and armies, when the reality is that we struggle to support a brigade. The doctrine needs to change. We are not producing corps and armies and it is unlikely that we will do so in the foreseeable future. If it ever happens that we do, they will most probably take on a different look and focus. Remember doctrine drives structure, recruiting, training, and equipment. This is the first step. Alternate Service Delivery (ASD) means more than just contracting out services, and if it is to be taken seriously then it needs to be included in our doctrine.

STRUCTURE

Once again put that hat badge away. We need to look at all the layers of

our headquarters. There is no easy solution or approach to restructuring the elements, but it is clear that the status quo is cumbersome and lethargic.

We have far too many general and chief warrant officers. Full stop. We have had general officers that have served a complete career and never commanded more than a brigade (some less), much less a division or more. Our pyramid and our span of control are distorted. We need to take a serious look at how many team captains are required to run a team of less than 20 000 members.

We need to take a hard look at our classifications and Military Occupation Codes (MOCs). All of them! We need to take some apart and ask ourselves some hard questions: Is there a requirement to have an engineering degree to run a garage (maintenance platoon)? How many of our engineers actually function as engineers? Is there a requirement to have an arts degree to run a warehouse (supply platoon)? Is there a requirement to have a degree to command a Battalion? Is Training Development Officer (TDO) or Public Affairs Officer (PAFFO) a viable classification? Why are TDOs and PAFFOs commissioned when they don't lead troops? Where does leadership fit into this equation? Do we require a postal trade? Is driving a truck or a bus a trade? Are these not OSQs? Classifications and MOCs are expensive and come with all the baggage required to run a regiment or branch. We must combine blend some of these groups.

We are not getting a reasonable return on our investment in officer training. One idea is to pool all the Engineering Officers into an engineering cadre that responds to our engineering needs as required.

This would easily reduce the number of engineers we have in the military and that equates to money in the bank. Furthermore, we need to re-evaluate why we offer post graduate degrees and what benefits we receive for this generous offer. We need to look at the pay back time required and increase the years that recipients serve. It is virtually certain that attrition is higher amongst those officers who have acquired post-graduate degrees since in most cases it increases their marketability outside of the military.

We all know who drives the trucks in the armoured, artillery and infantry therefore logic dictates that these same people could drive the trucks in a Combat Service Support (CSS) unit. This could be easily accomplished by rotating combat arms soldiers through the service battalion. This approach allows soldiers some time away from the forward edge of the battle area and some exposure to the rear area. It would also allow for better team-building as the CSS and combat arms soldiers would work together in the Brigade Support Area and not just at the unit level. This equates to an increase in the combat arms manning levels and a decrease in the CSS manning levels.

What has happened to the combat storeman? The Qualification Level Three (QL3) and QL5 supply tech course combined is approximately ten weeks in length, suggesting that this should be OSQ territory. That is not an MOC. One alternative is to look at combining the supply technician with the traffic technician, adding in the postal function to create a more viable MOC. Do we need a weapons technician or would we be better served with a weapons system technician? Do we need medical repair technicians *and* dental repair technicians or is there an ASD

solution available? One ASD option is to pass the repair function to the FCS technician. Should not the Ammo technician be the fifth Electrical Mechanical Engineering (EME) trade? These questions must be answered.

The Joint Task Force also needs to be looked at. Aside from the headquarters, do we need JTF? Is their funding part of the DND envelope? Do we have an airborne capability, and if so is it realistic or are we simply clinging to the idea? Why are the three brigade groups structured differently with respect to Combat Service Support (CSS)? Is this truly efficient? Our doctrine does not allow for this much flexibility.

There are an abundance of options available to us in the structure category, we just have to be brave and ruthless to take the necessary action.

RESERVES

Without a doubt this is one of the most topical and difficult subjects. The bottom line is that the status quo does not work and throwing more money at this problem is not going to make it work. We need a game plan and the ability to put it into place. The best solution is the farm team option. A reserve unit is blistered onto a regular force unit and provides it with a proven set of skills and manpower, as dictated by the needs of the regular force unit. In all probability this means providing the mandate and the funds to the regular unit to make this work. In essence this means that if a regular unit needs a mortar platoon and the reserve unit proves it can parade the necessary personnel, then the reserve unit becomes a mortar platoon, to be integrated with the regular unit as required.

Many reserve units will have to be stood down and although there is

much to be appreciated in the history of these reserve units, unfortunately we have to be objective and evaluate what these units have done for us in more recent times. The hard truth is that they have not been a success story for many years. Although there will undoubtedly be political obstacles to closing reserve units, this is one of those contentious points we need to address in the short term. Tremendous funds are being spent on the reserves in the current format that could be better spent elsewhere. Reducing the number of reserve units could potentially increase both our own and the remaining reserve units chance for survival.

It has to be admitted that the CSS reserves are a huge failing. With the odd exception, we have tried to duplicate with little success virtually all of the CSS regular force trades in the reserves. We should get out of the business of CSS reserves and re-role them into something with a better track record, such as communications. If we are forced to keep them, we should look to MOCs that are created rather quickly. A good example is the supply/traffic/postal technician that has already been mentioned. Once again the farm team option is probably the best. If a reserve unit proves its ability to parade the numbers then perhaps we should field a platoon or company that is owned by the parent regular force unit. Once again we would need to devolve the funding to the regular force unit.

In summary the current reserves do not field units, rather they field platoons and occasionally companies. They are top heavy organizations with a very high attrition rate. They are frequently used as short-term employment opportunities in a profession that requires dedication, professionalism and commitment.

RECRUITING

This is another area in which we need to enlighten and inform our civilian masters. It may be politically incorrect and even distasteful, but we cannot be a reflection of society. Society is expensive and we simply can't afford to create a mirrored image of it. We cannot recruit 40 and 50-year-old people. We cannot recruit single parents—we have enough of our own without bringing them in on day one. We need to recruit folks that are immediately trainable, employable and deployable. Building an officer or soldier is expensive. Running the Army and all the units within it is expensive. We are told to be more fiscally responsible while at the same time we are restricted by unwise policies. We need to reduce or cease altogether the complete funding of university education. We should look at recruiting university graduates or at a partial subsidy alternative for education.

We should recruit combat arms personnel only. Upon completion of their basic training and having demonstrated an aptitude for a specialty, they can then be offered a technical trade or classification. Members of the Army need a solid foundation in basic soldiering skills and those skills are best attained within the combat arms.

We must provide more rigorous psychological and physical testing of our recruits prior to their enrollment into the military. Considering both current and forecast reductions we need people to be fully functional at the onset of their career. This is not always the case today.

Terms of service should be studied. Perhaps a blending of the British, American and German approaches to this subject is in order.

TRAINING

We fund the majority of our officers' education, including post graduate degrees. If this policy is to remain, then we should offer secondary education or training for the non-commissioned members as well. For example, at some stage of a soldier's career we could offer the soldier the opportunity to earn a college diploma. This will cost money, but the payback is probably a happier and more dedicated soldier, who has a better chance of a career after the military. This is what we offer our officers already. Naturally there would be a requirement to pay back the time.

Soldiers need to be trained as soldiers, just as sailors need to be trained as sailors and so on. The concept of a purple soldier is ridiculous. We do not have the money, time or will to create this person and we never did. The common basic training offered at St Jean is simply not a good investment. We would be far better off placing the army recruit in the battle school from the very beginning of their career. Leadership training should also be conducted at the battle schools: the current Senior Leadership Course (SLC) is a misnomer. The Army should be able to recover their share of the dollars currently being spent by Canadian Forces Recruit Education Training System (CFRETS) on generic type training.

"Distance learning" is an excellent tool and one that we should use as much as possible. Placing the emphasis to

succeed on the individual is a very healthy approach. Any course that is heavily laden in theory is an ideal target for distance learning, meaning that Staff College, Staff School and our technical courses could potentially be cut in half.

What are Intermediate Tactics Course 1 and 2 and how do they fit into the officer training sequence? We are trying to teach our young officers how to do a combat-estimate before they have learned how to be a good platoon commander. Not all the officers in the Army will command companies, fewer will command battalions, and even fewer will command brigades. They cannot all be TDOs or PAFOs

We need to train as we live and fight. We need to look at where we should be blending our training, both within the combat arms and the CSS.

EQUIPMENT

We have to reduce it. We are currently running too many fleets and not just vehicles, equipment as well. There is simply no logic in trying to keep it all serviceable. How does one develop a training strategy for this type of equipment grouping?

Our equipment must match our doctrine or we are going to cause unnecessary deaths. It is also very expensive to try and continue on in this fashion. We will never become a cohesive and intelligent military fighting unit unless doctrine, policy, tactics, personnel, training and

equipment all complement each other. This goes back to the beginning and the need to define our role. What is the military, expected to do? What do our political masters see us doing? The significance of this is huge. A clear definition of our role will force us to choose between tanks, LAVs, airplanes or ships (and what type of each we need). Should we have light infantry or mechanized infantry or a blending of all of the above? All this is to say that the status quo is expensive, illogical and *unacceptable*.

SUMMARY

First of all, we all know that it is much easier to find fault than to implement change, especially when we are faced with the constraints and the political environment of the day. Despite this, we are obligated to make change where we can and where it benefits the overall team regardless of our own internal politics.

Many of these issues have been raised by others and may well be on the discussion table; the point is that perhaps we need more execution and less talk. It must be concentrated execution not disjointed execution. It is our future and we need to be ready for it.



About the Author . . .

CWO G.M. Clough is a member of the Electrical and Mechanical Engineer Branch with 32 years service. He has served with armoured, artillery, infantry, and signals units, 4 Service Battalion and 1 Service Battalion. His service has included tours with 4 Canadian Mechanized Brigade Group, 1 Canadian Mechanized Brigade Group, NDHQ and CFRETS. He is a former RSM of CFSEME and the EME Branch CWO. He is currently serving as the Regimental Sergeant Major of 1 Service Battalion in Edmonton.

CRISIS IN LEADERSHIP: THE SEVENTH BRIGADE & THE NIVELLES "MUTINY", 1918

Lieutenant-Colonel Ian McCulloch, CD

It was also the fate of 7th Canadian Infantry Brigade (CIB) to have a new brigade commander for Cambrai, the last great action of the war, and to lose two experienced battalion commanders in the early hours of the campaign. It meant that command and control were seriously affected and needless casualties were incurred.

The General Officer Commanding (GOC) 7th CIB, BGen John Arthur Clark, former CO of the 72nd Battalion (Bn) (Seaforth Highlanders) from 4th Canadian Infantry Division (CID), looking back 45 years later would say:

Never have I felt so depressed as I felt after that battle. It seemed impossible to break the morale and fighting spirit of the German troops. We felt that this *Boche* could not be beaten, certainly not in 1918. He fought magnificently and in a most determined fashion. He discouraged a great many soldiers in the Corps.²

General Currie, who visited the 42nd CEF Bn (Royal Highlanders of Canada) officers in a rest area after the battle in late October, also felt the discouragement. He asked them to tell him what had gone wrong:

I want you to forget that I am the Corps Commander and to tell me quite frankly just what you think went wrong with the last show. I want to know exactly what you are thinking, whether you believe mistakes have been made by higher commanders or not. I want you to feel quite free to speak to me man to man and nothing you will say will be held against you.³

Currie was lucky that the Highlanders' CO, Royal Ewing, was on leave during his visit, for the embittered Ewing, no doubt, would have given the corps commander an earful. Charles Stewart of the Princess Patricia's Canadian Light Infantry (PPCLI) had been killed. Dick Willets of the Royal Canadian Regiment (RCR) had been severely wounded and Robert Palmer of the 49th Bn had been on leave. This made Ewing the only surviving battalion commander of the brigade involved in the battle under discussion. What the Highlanders said in their CO's absence is not recorded.

It was the fate of 7th Brigade, in its last great action of the war, to encounter enemy formations well rested, strong and full of fight.¹

G.R. Stevens
A City Goes to War

The Corps would persevere and on 9 October, Cambrai fell to the Canadians. The Brigade would take part in the pursuit of the retreating German army, at one point leading the Corps through the Forest of Raismes. It would have the ultimate honour of being the first Canadian brigade to enter Mons on 10 November, the day before the Armistice was declared. It would also be the first and only brigade to mutiny in the Canadian Corps. It would, however, continue to exist in name until the day its battalions got on the ships to return home to Canada. Before doing so, it would not be forgotten by its first

two commanders. BGen Hugh Dyer came for a last goodbye to a Brigade parade held in his honour at Bramshott. The charismatic "Batty Mac" remembering the "Fighting Seventh" would pen one last heartfelt message: "It is a proud boast for me to be able to say that at one time I commanded such a Brigade. I have no fear but that they will succeed in civil life and will ever exhibit the same qualities of courage, initiative, thoroughness and tenacity of purpose that they showed to such a large degree on the battlefield."⁴

PROMOTIONS AND PROBLEMS

The problems in 7th CIB began when their much loved GOC, BGen "Daddy" Dyer, was replaced by newly-promoted BGen Clark on 12 September in the short lull between the battles of Arras and the battles for Cambrai. Dyer's leaving is certainly noted by the various Regimental Histories and war diaries, which all extolled his virtues and professed love and admiration for the man, but no reasons for his sudden departure are given. The Official History only states that MGen Lipsett's departure and General Loomis' promotion "led to a number of changes in the command of infantry brigades within the corps." Dyer had served for 12 months under Loomis as a battalion commander and had been promoted during that period to command a brigade, no doubt on Loomis' recommendation, so it was definitely not a case of the new GOC not wanting Dyer.

Dyer's handling of 7th CIB at Passchendaele, Amiens and Monchy-le-Preux had been effective but not brilliant, so incompetence is ruled out.

Health was more likely the cause, Dyer having sustained a serious wound at the 2nd battle for Ypres. Burns notes in *General Mud*⁵ that the average tenure of command for a First World War brigade commander was 17 months. Dyer, with an unbroken 15 months of brigade command, preceded by demanding battalion work from the outset of the war, was due for a long-needed rest. He had done his time honourably and was now accordingly sent back to England to the less stressful command of the Canadian Training HQ at Seaford.⁶ Whether it was the best decision for 7th CIB “to change horses in midstream” is another matter. As will be seen, the battles of the last 100 days became more chaotic and unpredictable, making demands upon those in command and control to have well-tested and smooth operating procedures in place, and the knowledge to execute them effectively.

Dyer’s replacement, the younger 32-year old Clark, was a lawyer and militia officer from Vancouver, who had commanded the Seaforths from the outset of the war. As a battalion commander he had won the DSO three times but would appear from the outset to have been uncomfortable as a brigade commander.⁷ An RCR officer in his memoirs revealed that Clark spoke to him after the war and “mentioned how uncomfortable it was for a new brigadier to ask so much from well-known regiments, to be under such pressure himself and scarcely more than a name to the brigade.”⁸ Clark himself would reveal in an interview in the 1960’s, that to take over command of a brigade just prior to a complex operation such as the breaking of the D-Q line and the crossing of the Canal du Nord, was a daunting prospect.

“I was quite a young Brigade commander,” he recalled for the Canadian Broadcasting Corporation (CBC). “I was 32 at the time and most of these COs were older than I was and I felt more or less a stranger in the

brigade.”⁹ Clark thus came to lean heavily on the CO of the PPCLI, LCol Charles Stewart, the most experienced and flamboyant of the four battalion commanders. When Stewart was killed at the Canal du Nord action on 28 September 1918, Clark admitted that he “felt his loss particularly.” Stewart had given him “a most generous welcome and the most loyal possible support. I’d grown to rely on him and I always felt his cheery nature buoyed me up and gave me a lot of encouragement.”¹⁰ That LCol Stewart could have had this effect on his senior commander in the space of a little over two weeks is a testament to his charisma and natural leadership abilities.

In the vicious fighting that followed Stewart’s death, Clark would flounder and incur the disrespect of at least two of his four battalions—the PPCLI and the 42nd Bn. Later, after the Armistice, his brigade would mutiny at Nivelles in Belgium in December 1918, ostensibly for orders requiring the men to march with full kit, but there were deeper and blacker reasons—resentment and hatred for Clark’s ineptness in handling the brigade at Tilloy. Clark himself claims to have been demoralized by his first and only stint as a brigade commander in prolonged offensive operations. “When the 7th Brigade was relieved, I felt tired and depressed,” he recalled. “Our losses were heavy. I felt somehow, that I had failed in the leadership that the troops were entitled to.”¹¹

At least one CO, LCol Royal Ewing, had exactly the same thoughts and took the first opportunity after the battles for Cambrai to make his thoughts known in a back-handed way—the end-month submission of his battalion war diary. The entry on BGen Hugh Dyer’s departure, which takes up almost the entire page, is placed over a small entry acknowledging the arrival of Clark on 12 September. The wording and style is unmistakably Ewing’s and is a blatant message to Clark that he does not fit

the bill. It is worthwhile quoting both entries in full:

The departure of Gen Dyer from the 7th Cdn Inf. Brigade occasioned the most widespread and sincere regret. Not only had his leadership won the admiration of the men and officers under his command, but his personality had endeared him to all who knew him. His sound and balanced judgement—his sure appreciation of a military situation—together with his keen sense of the supreme value of human life made him a leader in whom we were able to impose implicit trust, while his genial and kindly spirit—his deep interest in the life of his men and his personal gallantry in action won for him the affectionate admiration of all.”¹²

Almost as a footnote under this eulogy is the original entry which Ewing knew the new commander would be sure to read. It simply states: “Lt Col J.A. Clark, DSO, OC 72nd Battalion Seaforth Highlanders took over the Brigade. Col Clark comes with a fine record of service and we feel confident that the brigade will achieve further successes under his leadership.”¹³

Ewing was not alone in his dislike of Clark. Another CO, Capt G.W. Little of the PPCLI, who temporarily replaced Stewart, was so embittered by his experiences with Clark, that in a 1960’s interview with CBC, he exclaimed, “My brigadier, the son of a bitch, is still alive—I’ll kill him if I see him.”¹⁴

PLANS AND PROCEDURES

Sir Arthur Currie, perhaps the greatest general Canada has ever produced, considered his 26 August to 3 September offensive in 1918, crowned with the victory of breaking of the D-Q Line, his Corps’ greatest achievement for several reasons.

[At Amiens] we went up against an enemy who was prepared for the

offensive; here he was prepared for the defensive. There his trenches were not particularly good ones; he had no concrete emplacements; he had little wire; his guns were all well forward in order to help him in the advance he proposed to make....Here we went up against his old system, that which he has never had anything stronger anywhere. His guns were echeloned in great depth, and so we were continually under artillery fire....It is practically his last, and certainly his strongest system west of Cambrai.¹⁵

"Few would disagree with Sir Arthur," states the Official History. "The Corps' success in destroying the hinge of the German defence system had not only made it possible for the Third Army to advance; the repercussions were to be felt along the whole front."¹⁶

The same day the Canadians were receiving congratulations for breaking the D-Q Line, Field Marshal Foch ordered an offensive on a front of 125 miles, with heavy attacks to be delivered by British, French, US and Belgian forces. By 10 September 1918, six armies, three French and three British, had closed up on the last line of German defences as the Germans withdrew. After the breaking of the D-Q line, Currie was told by the Chief of General Staff (CGS) that "the Commander-in-Chief was well pleased with the conduct of the Canadians, and that he hoped it would not be necessary to employ us in any further big operations during the year."¹⁷ But, unfortunately, this was a false hope, as Haig wanted to win the war in 1918 and needed the Canadian Corps to help keep pressure on a crumbling German front.

On 15 September, General Currie was informed that the Corps would be the spearhead of First Army in forcing a crossing of the Canal du Nord and striking at Cambrai, a vital centre of communications. Currie's daring plan to accomplish the mission will not be given in detail here; suffice it to say, it

worked. The 1st CID and 4th CID led off for the Canadian Corps. On the left, 1st CID overran its immediate objectives and pushed on. In the south, 4th CID had less luck, meeting strong resistance at Bourlon village and Bourlon Wood. The latter was taken only after it was heavily saturated with poison gas by Canadian artillery. As a result, 3rd CID was called forward before its time: on the morning of September 27th it was ordered forward to relieve elements of 4th CID and to sustain the momentum of the assault by helping to take Fontaine-Notre-Dame.¹⁸

Crossing the Canal du Nord in the wake of the other two divisions, 7th CIB found itself in Bourlon village and the eastern wood line of Bourlon Wood by 1800 hrs. BGen John Clark was commanding the brigade in his first action. The new commander had been given a very detailed and ambitious task by an equally new divisional commander, MGen F.O.W. Loomis, who had replaced MGen L.J. Lipsett. Passing through the 11th CIB, Clark's 7th CIB was to force the Marcoing Line from the village of Sailly in the north to the angle of the Arras-Cambrai and Bapaume-Cambrai roads in the south. Once this was accomplished, he was to move his brigade to the north-east and pass the northern outskirts of Cambrai. Then the brigade was to cross the Douai road and railway embankment, take Tilloy and Tilloy Hill and finally descend into the valley at Ramillies, capture the canal crossings, "and if possible secure the village of Ramillies and establish bridge-heads over the Scheldt Canal." The PPCLI historian notes drily that "it is easy to see after the fact that such a programme underrated both the opposition that the Germans would put up to save the bridge-heads, and the immense strength of their prepared positions on railway and hill."¹⁹ In other words, 7th CIB was being launched into unreconnoitred territory for which there was no detailed intelligence.

Clark decided to use only one battalion to break through the Marcoing Line in his sector with the PPCLI detailed to provide support if necessary. The verbal orders he gave to the CO of the RCR later that evening for the first phase of the plan, however, did not leave much time for battle procedure. The RCR History relates the night's events:

Soon after midnight, LCol C.R.E. Willets, D.S.O. returned to the unit from Brigade Headquarters and, summoning his company commanders to a conference in a shell hole behind a broken wall, explained the outline of the next day's operations. There was no time or opportunity to enter into detail. By the light of an electric torch, LCol Willets marked on a number of maps the frontage and general direction of each company's attack, the boundaries that had been decided upon, and the objectives which it was hoped the attack would attain. The first objective was the Marcoing Line, beyond which the attack would swing north-east towards Tilloy if possible. Probably in the whole experience of The Royal Canadian Regiment no orders for a major operation had ever been more concise, as the Commanding Officer, knowing how little time there was to spare, wasted as few words as possible.²⁰

Time was all important and company commanders tried to conduct reconnoitres forward but were hampered by the pitch darkness and the Germans shelling the area with mustard gas. At 0530 hrs on 28 September, the three designated RCR assault companies attacked with one in reserve. The RCR were supported by four tanks and "a very effective barrage" and went straight from the edge of Bourlon Wood to the Marcoing Line which lay behind a railway embankment and was sited on a reverse slope to their view. As they crested the rise "the men realized the grim nature of the task before them," recounts the Regimental History.

"Defended by great belts of wire and by many strong points, each with a garrison of trained machine-gunners and two or more guns, the German position constituted a barrier which obviously could be stormed only by an effort of supreme valour and determination."²¹

Mid-morning found the Regiment pinned down under heavy fire from the front and the village of Sailly on the left flank. The CO was seriously wounded by a shell, and his Adjutant was killed. The battalion appeared to be floundering. The RCR were inspired by the leadership and gallantry of one junior officer, Lt Milton "Groggy" Gregg, who, when the advance had been held up by uncut wire, went forward alone, found a gap, then brought his men forward into the German positions. Then he led bombing attacks along the German trench system and when the bombs ran out, personally went back for more. His bold attack allowed the other companies to move up and get through. Gregg would later be awarded the RCR's only VC of the war for his gallantry.²²

The PPCLI, sent forward by BGen Clark to assist the stalled RCR, lost their devil-may-care CO, LCol Stewart to a stray shell as it moved up past Raillencourt. Nevertheless, companies, already briefed, carried on with the tasks at hand and by early afternoon both battalions were through the Line and mopping up support positions between the Arras and Bapaume roads.²³ But further progress was impossible for the time being as the 9th CIB's attack on their right flank had bogged down. The 49th Bn came through the Marcoing line and took up positions on the right of the PPCLI to continue the advance towards Tilloy at 1900 hrs. The supporting barrage favoured the 9th CIB on the right who were given the village of St Olle as their objective. The 49th and PPCLI went forward without the tanks they had been promised and encountered no serious resistance until

they were in view of the Cambrai-Douai railway embankment. Then the PPCLI ran into an unmarked overgrown belt of wire and the advance was halted. The 49th Bn lead companies were pinned down by heavy machine gun (MG) fire, not only from the front, but also from German MGs on their right flank in St Olle, which 9th CIB had failed to clear. That evening Clark ordered the 42nd Bn and the 49th to resume the attack in the morning at 0800 hrs.²⁴

"When the supporting barrage opened at 0800 hours it was thin and ineffective," reports the 49th Bn History of the ill-fated 29 September attack. "A and B companies advanced against machine guns firing at point blank range. Both company commanders were killed, but their men drove steadily on." After heavy losses the 49th Bn closed up to the Cambrai-Douai road just the other side of the belts of wire. The 42nd Bn attacking on their left flank fared no better, decimated by machine guns firing from the embankment while they were entangled in the wire. Major C.B. Topp, the 42nd Bn's ground commander for the attack, recalled that the leading companies began the advance "on the stroke of eight" and that the barrage was "comparatively weak in volume."²⁵ Nonetheless they advanced:

...in long thin lines of sections in extended order...the supporting companies following in the same order some distance behind. The advance continued in this order almost as a parade ground movement for more than 1000 yards. Not a shot was fired and it was thought for a time that the enemy had evacuated the position during the night; then the Highlanders reached the wire in front of the dump, two long broad belts loosely strung and almost concealed in the grass. The first ranks crossed the wire stepping labouriously over it strand by strand. The men in the second line were making their way

through and the remainder of the Battalion was fast closing up. Then, as though by signal, dozens of machine guns opened fire at point blank range from along the Douai road from the railway embankment and from the high ground on the flank. So sudden was the burst of fire it was impossible for the men even to throw themselves on the ground in time to escape it. The leading ranks went down like ninepins, many, their clothing caught in the wire, hung there helpless under the stream of bullets. From that moment organized control of the attack was impossible, and it is to the lasting credit of the non-commissioned officers and the men themselves that even in the face of this devastating machine gun fire there was no attempt to turn back.²⁶

The 42nd suffered 50% casualties in the short space of about 15 minutes, but like the 49th Bn, they struggled on through singly, in pairs and by sections, firing as they went. The survivors took up fire positions and captured dugouts along the Cambrai-Douai road facing the Cambrai-Douai railway embankment some 300 to 400 yards away. That "dozens" of MGs had caused the Highlanders attack to fail was proven the following morning when the 42nd advanced after the PPCLI and the RCR had passed through to capture Tilloy village. One of the two composite companies of survivors found 36 MGs abandoned amongst the German dead in a 100 yard stretch of railway cutting to their immediate front.²⁷ These were then put to good use and turned on the enemy.

After the failure of the 29 September attacks, BGen Clark's 7th CIB was ordered to take Tilloy the following morning. Historian Dan Dancocks has observed: "The choice of this brigade was questionable: it was tired and depleted, seeing action for a third consecutive day."²⁸ Cpl Will Bird recorded the reaction of the bitter men

on the ground at the time: "Sellars and his men said it was impossible that we had been ordered to attack again, that it was suicide."²⁹ The PPCLI attacked with just a little over single-company strength. The 42nd were reduced to six weak rifle platoons cobbled together into two weak companies. The RCR was not much better.

The PPCLI History records that the final battle for Tilloy was "beyond every other action of the later years of the war, a fight to the finish." The 49th History concurred when it stated the battle became an "intimate encounter—man against man and seldom more than section against section or platoon against platoon. The machine gun, either in attack or defence, was the key weapon." The 'Left-Out-of-Battle' men of all the battalions were brought up the night of 29 September and the PPCLI and RCR were in their attack assembly areas by 0330 hrs, on 30 September. They jumped off at 0600 hrs supported by a tremendous barrage, as well as MG and trench mortar batteries in support and stormed the railway embankment with relative ease.³⁰

Crossing the embankment, and again exposed to German MG posts and nests configured in depth, the two battalions soon shuddered to a halt. The PPCLI according to their acting CO caught the Germans in Tilloy "with their pants down" and had consolidated the village by 0730 hrs, capturing a battery of 77-millimetre guns and fifty German MGs. Reinforced with the remnants of the 49th Bn, the PPCLI hung grimly on to their meagre gains under heavy shellfire until relieved that night by 9th CIB, which fared no better than the 7th CIB in getting forward the following day. The RCR on the left of the PPCLI, whilst debouching from the railway line were hit by a storm of MG fire, much of it coming from the direction of Blecourt, where the 4th CID was bogged down. In effect, by mid-morning, 7th CIB had been fought to a stand-still by the

Germans and had ceased to be an effective fighting formation. BGen Clark knew it, his officers knew it and his men knew it.³¹

PERSONALITIES AND PRESSURE

Until Cambrai and the unfortunate aftermath of the Armistice, the "Fighting Seventh" had been one of the most dependable and hardest-fighting brigades in the Corps. After Passchendaele, BGen "Daddy" Dyer had rebuilt its strength with new drafts of officers and men, honing its aggressive skills whilst in the line by fierce raiding and patrolling and training for open warfare when out of the line. Three infantry battalions had new COs for 1918, the RCR receiving theirs immediately prior to Passchendaele, the PPCLI a few months later, and the 42nd mid-summer, when LCol Bartlett McLennan was killed by a stray shell. In the RCR, LCol Claude Hill, DSO, "the martinet" who arrived just prior to Sanctuary Wood, was replaced by his 2I/C, Maj C.R.E. "Dick" Willets, DSO, a competent and experienced "Original" company commander of the overseas battalion and a Permanent Force officer of some ten years. Assigned a supporting role of providing ammo carrying and stretcher bearing parties at "Pash", his battalion performed well. His first test of command, however, would not come until after the battle of Amiens, which he had missed by being on leave (16 July-18 August)—no doubt a victim of the carefully-controlled deception plan and secrecy which shrouded the operation. The RCR would be led by a captain in this important battle. Willets was back for the tough fighting in and around Arras, though his battalion appears to have been caught napping prior to the battles for Orange Hill and Monchy-le-Preux. "Owing to the fact that orders for the move up to the line had arrived unexpectedly," notes the Regimental History, "all officers entered the attack wearing the uniforms usually worn only

when out of the line. In the close fighting that followed, this was not without its effect, for the officers, with belts and buttons shining and light-coloured breeches, afforded a conspicuous and easily identifiable target to enemy snipers." It seems that Willets was carrying on his predecessor's legacy for maintaining Permanent Force standards at the front. When Willets was wounded by a direct hit on his battalion HQ at the battle for the Marcoing Line in September, his place would be temporarily taken by Major C.B. Topp, DSO, 2I/C of the 42nd, who just happened to be on a liaison visit at the time. Subsequently a RCR captain became CO. Once the regiment was out of the action, Major G.W. MacLeod, DSO, a 49th Bn officer serving with 3rd Canadian Machine Gun Bn would be promoted and take command of the regiment, probably much to the consternation of several Permanent Force officers.³²

In the PPCLI, LCol Agar Adamson, the eccentric 52 year old CO known affectionately to his men as "Ack-Ack", was burnt out. "The previous summer, he'd spent a week in hospital with trench fever," notes his biographer. "Later, he'd been hospitalized by a dose of mustard gas. So poor was his vision, even in his good eye, that he was helpless without the monocle that was now enshrined in regimental folklore, and, even with it screwed in, continually fell into holes and bumped into obstacles when inspecting the trenches at night." He was also suffering from nervous exhaustion and the brigade commander stepped in. "The brigadier was very nice about it," he wrote to his wife. "Whoever is in command should be full of health and youth. My blind eye and age were against me." Adamson resigned his command on the pretext of his wife's ill health in the UK, but in fact, it was his own.³³

Dyer's view on his CO's being fit and dynamic ensured that the Regiment's founder, LCol Hamilton

Gault, sporting a wooden leg from wounds received at Sanctuary Wood, was kept out of the running to replace Adamson. As Gault's biographer notes "the question of Adamson's successor had received little attention in the midst of the German offensives,"³⁴ but when it did, it illustrates the process and careful deliberation that went into selecting a battalion commander in 1918.

BGen Dyer believed Gault to be unfit and recommended the acting CO, Maj C.J.T. "Charlie" Stewart for command. MGen Lipsett, GOC 3rd CID agreed, but Currie, the Corps Commander, thought Stewart lacked the necessary balance of character and told Lipsett to consult Gault. Biographer Jeffery Williams takes up the story:

There was no doubt in Gault's mind that Stewart would fight the battalion boldly and well in any kind of action. But out of the line, when the flow of adrenalin eased he had shown little interest in its day-to-day management. He was a soldier of Falstaffian tastes who too frequently shed mundane administration for a roaring party in the Mess. More than once the Regiment had had to extract him from trouble when he was on leave in London. More than once, after drinking too much, he had been hidden from a visiting general. He was impulsive and prone to speak on serious subjects without much thought. He was unlikely to represent the Regiment well within the Corps and would probably be regarded as a lightweight, if not a buffoon. He seemed incapable of maintaining a judicious distance from his subordinates—to draw the line between friendliness and familiarity, between authority and indiscipline—an essential quality

of a commander. But in Gault's view, one of the worse results of the careless running of the regiment would be that the men would suffer."³⁵

Stewart's tactical competence and ability to do what was right in action was beyond reproach, but it was administration, an equally important aspect of command, that was considered his major failing. Without a firm grip on administration, Stewart was not considered completely "professional", nor was he a true "gentleman" with his "unbalanced" and flawed character. Gault recommended that he, as senior major, should take command and the corps commander agreed. The 18 June 1918 Canadian Corps orders announced: "Major (Acting Lieut-Col) A.H. Gault to be temporary lieut-col and to command PPCLI with effect from 28 March 1918." When Gault arrived at the Regiment however, he found Stewart on leave and was met by the acting 2 I/C, Maj George Macdonald (former Staff Captain "I" of 7th CIB who had recovered from wounds), who asked to speak to him privately. By a twist of fate, the final "informal" political aspect of the battalion commander selection process kicked in. Bluntly, Macdonald told Gault that the Regiment as a whole no longer knew him and the officers thought him physically unfit to command. "They wanted Stewart, a first-rate fighting soldier, who had commanded them for the past three months, was known to them and enjoyed their confidence," notes the biographer. The final revelation was that Dyer, the brigade commander, who had not yet spoken to Gault, thought that Gault was unfit to command and had asked for Stewart.³⁶

Gault was stunned and went to an interview with the GOC 7th CIB where he learned the full truth. "Much as

'Daddy' Dyer admired Gault and regarded him as a friend, he was indeed of the opinion, that, with only one leg, he was unfit to command," records Williams.

As gently as he could, [Dyer] told him so and confirmed that he had asked for Stewart....When [Gault] left brigade headquarters, he was near to despair. Since his marriage had been destroyed, he had focused all his love and aspirations on the Regiment which now had rejected him....If his officers and brigadier regarded him as being unfit to lead, to him there was no alternative but to refuse the command which had become his life's ambition.³⁷

Gault would command the regiment after the armistice, but not before the ill-disciplined rot of Stewart's tenure of command had set in with unfortunate results.

In all fairness, Stewart was well-liked by both his brigade commanders and the other battalion commanders. The PPCLI History states that he possessed "a very unusual personality" and that he "was one of the best known battalion officers in the Canadian Corps" due to his "endless tales of his life as a rolling stone, as a Royal North-West Mounted Policeman, as a campaigner in Belgium and France, [and] of whimsical dare-devilry in the four corners of the earth." One of his platoon commanders remembered: "The tales of Charlie Stewart were legend. He had been a soldier of fortune, a Nova Scotian by birth, and had fought, it seemed, in half the armies in the world. He was quite an original character as was Adamson [who] had all the qualities of leadership which he chose to hide under a whimsical and offhand manner."³⁸ Adamson, the former CO,

as selfless in his devotion to the regiment as Gault, was incensed with his former battalion officers. He was convinced that too many officers were becoming greedy for promotion, he wrote to his wife that "the best of them is inclined to forget what he came out here for." He added:

I consider that Charlie Stewart is selfish in the matter and...I am ashamed of C.S. and the other officers whom he should never have allowed to be on equal terms with him in matters of policy. He will never be anything but an irresponsible boy without any of the reserve and dignity that should go with the Command of a Regiment and will never be able to do more than command a fighting company, and that he would always do well and gallantly.³⁹

The 42nd Bn would lose their beloved CO, LCol McLennan, to a freak shell while on his reconnaissance four days before the battle of Amiens. His young 2 I/C, Maj Royal Ewing, was a militia officer and insurance broker before the war, an "Original" officer who had served continuously in France as platoon commander, adjutant and company commander. The 42nd padre summed up everyone's feelings regarding McLennan's death in his diary:

Our loss cannot be reckoned in words. All that he has been to us and done for us we shall never know fully, and only with the passing of days shall we begin to realize how his spirit was the dynamic of all our life and the foundation-stone of all that is true and worthy in our battalion....His life here bore its own witness. In honour without stain, in chivalry beyond reproach, in duty without fear, in leadership supreme, in friendship surpassingly loyal, he

lived among us the perfect type of soldier and gentleman.⁴⁰

The problems in 7th CIB started with the death of LCol Stewart on 28 September, whom most officers in the brigade had thought was indestructible. Morale in Stewart's battalion visibly sagged and Clark became concerned when the PPCLI were held up by a wide belt of barbed wire blocking the way to the Douai-Cambrai road. The barrier in question was a formidable obstacle, so overgrown with vegetation that it could not be detected on aerial photographs. Despite the descending darkness, the PPCLI had made a determined effort to overcome this concealed barrier and had discovered a small gap. It was, however, an intentional gap with several German machine guns accurately trained on it. They tried to rush it in the failing light, but were mown down. More than 40 PPCLI dead were found later at this gap, heaped in a twenty yard radius. Under the cover of darkness, the PPCLI withdrew 200 yards to lick their wounds. Capt Little, the senior company commander and acting CO as of 1600 hrs that afternoon, now takes up the tale:

In our first attacks at Tilloy we were held up in a sunken road by wire and...we couldn't move, so we came back about 200 yards. In the first interview I had with the Brigadier, he said, "Little, do you know the first principles of war?" I said, "I'm not sure. What are they?" "Well," he says, "One of them is to keep whatever you've got." I said, "We never had it, so don't worry." Then he said, "The 42nd is going to do it." So he told Royal Ewing [CO 42nd] that they were going to do it and Royal Ewing said, "We don't want to do it, the PPCLI couldn't do it, we

can't do it." "Why?" asked Clark. "Because there's too much wire there." "How do you know there's too much wire there?" "The PPCLI told us." [Clark] said, "I have aerial photographs. There's no wire there." Royal said, "If the PPCLI tell us there's wire, we believe them sir. If we told them there was wire, they'd believe us too!"⁴¹

That this shared intelligence on the wire obstacle had been brought to Clark's attention, but not acted upon, is borne out by Little's comments in his after-action report when he states: "It is not sufficient to rely alone on aerial photographs for the locating of wire. Personal recce seems to be absolutely necessary." Another reference to the above conversation was the telling statement: "The closest possible liaison between battalions is of greatest value. Battalion HQs were close together, and necessary information from participating units was readily at hand."⁴² In other words there was no excuse to ignore the reality of a significant obstacle, which required artillery bombardment. On the other hand, the Brigade had a mission and Clark in effect was telling his subordinates to get on with it.

At the end of Little and Ewing's heated exchange with Clark, Ewing reportedly agreed to make the attack, but under protest. Ewing was so worried that he travelled to the RCR BHQ to retrieve his 2 I/C, Major Charles ("Toppo") Topp, who was the acting CO of the RCR after a shell had seriously wounded LCol C.R.E. "Dick" Willets the preceding day. Topp recalled later in a letter to Duguid, the Official War Historian and a close personal friend, that Ewing came to see him at 0200 hrs, 29 September, the night "black as the ace of spades," and:

[Ewing] told me that the 42nd had been ordered to attack at 8am to the left of the RCR position: that he was extremely worried, having not seen the ground and having had no opportunity whatsoever of locating routes to the assembly position. No one, he said, seemed able to guide the battalion and he concluded with the request—"For God's sakes, Toppo. Come along with us. We're in a hell of a jam!"...I knew the ground already because I'd been there with the RCR, so I left my command without permission, simply notified the brigade that I was returning to the 42nd...⁴³

One might ask where were the Brigade Observers, who were supposed to act as Brigade guides for such operations. These important Brigade assets may have been casualties in earlier battles, with no trained personnel remaining to fill their important role. On the other hand, normal command and control measures by the brigade may have simply been discarded for the sake of maintaining momentum. The 42nd jumped off from the forward positions of the PPCLI with minimal artillery support, as did the 49th on their right, and advanced to where the PPCLI had been stopped. "The 42nd had 340 casualties in ten minutes," states Little (the actual official records show 288 all ranks). "Toppo", the designated commander on the ground for the attack, the four company commanders and the four company 2 I/Cs were all casualties. The 49th were also badly battered as they forced a way through the wire obstacle and forced German machine-guns to fall back to the railway embankment and village of Tilloy.⁴⁴

Ewing's rage is scarcely concealed in his after-action report as to where the exact problem areas in the attack

occurred. Most can be laid directly at Clark's door, and significantly, not a single one appears as a brigade comment in its after-action report to division. Ewing noted amongst other things "the desireability [sic] of an opportunity to make a reconnaissance before an attack if at all possible"; "faulty info as in the attack of the 29th Sept when a belt of wire was run into which was not known to exist"; "the necessity for more accurate information as to the existing line, and as to position from which the jump off is to be made, before making an attack, and the consequent impossibility of laying down a proper line for the artillery"; and, "the necessity of more time being given to battalion commanders prior to an intended attack to go into the matter thoroughly with their company commanders, and the latter in turn with their companies, and that ample time be given to the latter to get into position".⁴⁵

In this latter point Ewing was not alone. Maj Chattell the acting-CO of the 49th Bn, who had attacked on the 42nd's right the same morning, caustically noted his chief concern was:

The importance of receiving definite and final orders for the successive attacks in sufficient time to admit of those most interested and involved being fully acquainted with the situation. The difficulties of communicating with frontline Company Commanders does not appear to be fully appreciated.⁴⁶

Launching into the unknown without prior recce, thorough preparation, and good artillery support was a revisitation of the Somme experience all over again. It was not surprising that some experienced veterans, who knew what

resources were available and how artillery-infantry cooperation was supposed to work, would become bitterly convinced that their lives were being thrown away on the whims of higher command.

Clark most certainly, had not fully grasped the battle procedure required for a brigade in mobile operations and was falling back on the command experience he understood best. He was treating his battalion commanders as if they were company commanders. Capt Little noted that:

[Clark] was a great battalion commander but he didn't realize that when he became brigadier he had four battalion commanders working for him...We weren't given the opportunity [of commanding]. The higher command had a strategic plan that they were going to win the war before they knew it, before anybody else knew it, and we were told to do impossible things.⁴⁷

The inexperienced Clark hinted in an earlier quote that he was under pressure from above to push on as fast as he could. His battalion commanders did not feel this should be accomplished by eliminating battle procedure or without some "sure appreciation of the military situation" as his predecessor had been wont to do. Ewing openly criticized Clark in his after-action report when he stated: "

...had it been possible to delay the attack on the morning of the 29th in order to get full information as to conditions, I am of the opinion that with a bombardment by the heavies on the dumps and the railway line, followed by a barrage, it would have been possible to have got forward without anything like as heavy casualties.⁴⁸

Clark, in his mind, was responsible for the butcher's bill for not having the courage to tell Loomis that he needed more time and resources.

In some fairness to Clark, however, the 2000 hrs attack of the 42nd was not an isolated affair. All 3rd CID's brigades were attacking, the reasoning being that maintaining pressure and attacking on a broad front was the best defence against German counter-attack. However the brigade attacks were not co-ordinated. As Dancocks has commented in *Spearhead to Victory*, his study of the Corps operations in 1918 down to the brigade level:

it might have been expected ...that the Third Division would have problems. The three senior officers directing its operations on [28-30] September were all rookies. The divisional commander, Major-General Frederick Loomis, had been promoted barely two weeks earlier and both brigades [7th CIB & 9th CIB] were led by men unfamiliar with their commands.⁴⁹

The lack of time for units to prepare or to allow their supporting artillery to close up with the frontline and prepare the way resulted in the 29th September being a day of extremely bitter fighting with very little ground gained for any CEF units.⁵⁰

Little recalls that:

After the 42nd got the hell knocked out of them he had his second interview with BGen Clark on the evening of the 29th September: He said "Okay, Little, you're going to do it again. You didn't do it the first time, so you're going to do it now." I said, "I don't think we have enough men to do it."

"If you haven't, Little, then you have a lot of stragglers."

Well, I hope you can see that saying that to a fellow who was in the PPCLI as I, was exactly like calling a fellow the worst name you can in front of his mother. That infuriated me beyond any sensibility.

Little was now verging on open insolence, but his remarks show that Clark was not in the least way capable of mounting a co-ordinated brigade attack or prepared to try. Little thought to himself:

"To hell with him. We'll show the bugger that we can still do it even though he killed half of the 42nd..." He then asked Clark: "If we're still going to do it, is there a brigade plan or do I do it."

"You do it," said Clark.

"Well, we're not going to do it the way its been done so far."⁵¹

A close examination of the one page Brigade operations order for the PPCLI-RCR attack on Tilloy and Tilloy Hill (issued only six hours before the attack) is revealing. It has absolutely no co-ordinating instructions in it. Significantly, the artillery, trench mortars and MGs are all ordered to co-operate with the assaulting battalions. If one wishes to be charitable to Clark, one could say he was following Currie's lead in allowing his battalion commanders, the men on the ground, to formulate the plan.⁵² Thus, Little took what was left of his battered battalion and swung them left over the railway embankment on the 30th September and caught German defenders in the right flank. With heavy machine guns (HMGs) providing supporting fire from Chapel Hill, Stokes mortars firing in close support, and the RCR covering his left flank after he swung right, Little reported that "we caught

them more or less with their pants down and they suffered pretty severely." But the depleted battalion, which according to their Regimental History had "a rifle strength of very little more than a full-sized company" was under observation from German MGs sited on the high ground in depth behind Tilloy, which now joined in.⁵³

"We had a hell of a time getting up that hill, but we say we got there. I don't think we ever [physically] got there. They went out more than we went in, but they punished us like the devil." The PPCLI and RCR never did take Tilloy Hill and when 9th CIB passed through the next day at 0500 hours the PPCLI history records, "the tremendous ordeal was over."⁵⁴

7th CIB had been bled dry by three continual days of non-stop fighting. Despite left out of battle (LOB) procedures in the battalions, for the battles in and around Cambrai, the strongest and most effective junior leaders were killed off quickly in the battalions. By 30 September, the 49th Bn had no junior officers left and had to recall its liaison officers to maintain some semblance of command.⁵⁵ LCol Ewing wrote on 2 October 1918: "The troops are being used too continuously without an opportunity to properly re-organize, which is particularly a necessity with regard to NCOs amongst whom the casualties had been heavy."⁵⁶ Junior officers, as noted, had also been hard hit and this lack of junior leadership in 7th CIB would have serious ramifications, especially amongst the PPCLI, after the Armistice.

PACKS AND PROVOCATION

One PPCLI historian notes that after Mons had fallen and the guns had fallen silent:

...all was not well. Since the disaster at Tilloy, the Battalion

had not regained its full strength. New officers with no previous association with the PPCLI had been drafted in from a pool of reinforcements and there had not been time to mould its new men into the ways of the Regiment. With the Armistice of 11 November, the fundamental incentive essential to discipline in a citizen army was removed. Men accepted that they must soldier on, but began to wonder ‘for how long?’ Increasingly they found military routines and duties irksome. The key to morale, as ever, was leadership.⁵⁷

Quite simply put, with the necessity for operational discipline gone, inexperienced battalion officers and Non Commissioned Officers (NCOs) fell back on peacetime “chickenshit” to keep the soldiers occupied. Key officers disappeared on leave. The PPCLI experience was shared by the other 7th CIB battalions. When the Brigade marched from Mons to Nivelles, arriving at their destination on 13 December 1918, several hundred men of various brigade units met in the park the following day to discuss their grievances. “The immediate cause of the dissatisfaction lay in marching with full packs, a procedure that had been discarded during the operational periods of the war,” recalled a PPCLI platoon commander. “Moreover, the other ranks had not been told of their destination; many believed that they were on the way to Germany and hence destined for protracted service abroad. Finally, a few radical ring leaders had been infected by the Russian example and wished to institute Soldier’s Councils empowered to negotiate with commanding officers.”⁵⁸

During the evening, the crowd in the park increased and about 200 gathered at the brigade HQ. A small

group, including an American PPCLI private, Eric McKnight (later the author of the classic *Lassie*) were allowed in and spoke with the Brigadier. “I went and talked to the Brigadier,” recalled McKnight in a letter to Gault many years after the war. “He seemed heart-broken, and I was tremendously sorry for him.” But Clark would not accept any of the protesting soldiers’ demands. Early the next morning, a crowd from other units visited the PPCLI billets inciting the men to attend a mass meeting at 08:30 in the town square. When the battalion paraded at 0900 hours, an entire company was missing and presumed to be at the meeting. With a few exceptions, the men of the other three companies remained in their billets, ready to turn out on parade.⁵⁹

At the town square, after being addressed by several agitators, the crowd made a second visitation to all the units’ lines, attempting to enlist widespread support for their cause, as well as breaking into guardrooms and setting prisoners free. The fact that the PPCLI and RCR Regimental Histories do not mention the mutiny at all, while the 49th and 42nd cover it in some detail, lends credence to historian Jeffery William’s claim that in “the official reports of the brigade and the battalions concerned...one can detect a cover-up—commanding officers defending both their men and their own actions in the sorry affair.”⁶⁰ The 42nd Regimental History claims not to have had any men who participated in the mutiny. The History goes as far to point out that when “rioters” smashed in the doors of the Battalion guardroom, “their object being to release prisoners”, the prisoners helped out the Quarter Guard commander by claiming they were actual members of the guard. Afterwards the released prisoners “of their own accord, returned to the guardroom.” However, there is some

evidence that some 42nd soldiers attended the meetings and rallies. Pte Frank Flory, 96, remembers:

[I] was approached by some members of the 49th and asked to make propaganda in the 42nd. I don’t know where the lead was coming from, only one evening the call went out for everyone to participate by meeting at the headquarters for a general request for the elimination of packs to carry on route marches. The ground was full to capacity and I don’t know how the complaint was presented in the turmoil....I don’t know if there was any punishment for the ringleaders or not, but I do know as one from the Black Watch, I had to appear in front of our commanding Colonel. After all the questions and answers, I only got 7 days Guard Duty....After that, whenever the [Brigade] went from place to place, we were always accompanied by MPs & mounted police. All went well from there on...and a good thing this was over or it may have come to terrible consequences.⁶¹

The proof that the majority of the 42nd remained steady is evidenced by BGen Clark’s orders to LCol Ewing to police the Brigade after it mutinied “which we were not in the least anxious to do,” admitted Ewing to Currie’s biographer, Hugh Urquhart, after the war. In effect, Clark faced not only mutinous ORs but a mutinous battalion commander as well. Undoubtedly, Clark was the personage that Topp, the 42nd regimental historian, was referring to when he stated “some authorities had advocated the use of force to quell the disturbance, but cooler heads prevailed.” Ewing, an obvious “cooler head,” wrote to Urquhart:

We were absolutely fair to Clark in this matter but, Clark, to my mind, made an unfair report to the Corps Commander, who brought me to the mat. Currie was absolutely fair and while undoubtedly he must have liked Clark, I am sure that he saw through his weakness on the occasion...If Clark had only handled the decision in December in [a] deliberate way he would have had no trouble, but he bounced in and tried to make a big man of himself and couldn't bring it off. General Currie, in the interview I had with him, led me to believe—not by what he said, but more or less by how he acted—that he understood this part of the situation quite well.⁶²

Loomis, GOC 3rd CID, storming back from leave on the night of the 16th December was under no illusions. He first vented his spleen on the assembled battalion commanders of 7th CIB, then visited every unit and spoke to the men. His formal report to his immediate superior, the GOC 4th British Corps was to the point:

The alleged complaints which were voiced by the men were trivial. There were no real grounds for complaint. The whole matter was one of discipline, training and efficient Officers and Non-Commissioned Officers. It was not a condition of recent growth. The measures which I am taking are not exactly those which I would recommend if the Division were not preparing to move back home and if the fighting were not finished. The benefit of the doubt is now, in large measure, being given to certain officers who, if the Division was not shortly to be demobilized, I would strongly recommend that they be removed

from their commands for inefficiency.⁶³

It can only be speculated upon whether Loomis would have removed Clark, as well as most of the battalion commanders (including one from his own regiment) from command. We know that at least one PPCLI company commander was sacked and sent home immediately after the mutiny by his returning CO—Gault—who had hastened back from leave with Loomis. The irascible Capt Little was struck off strength on 17 December as it had been his company, which refused to parade on the 15 December. What Little's personal involvement in the Nivelles "mutiny" actually was will never be known, but it is certain that Gault held him personally responsible for his company's actions, and acted swiftly to set an example.⁶⁴

Thus the Great War for "The Fighting Seventh" ended on a sour note. Its experienced veterans, including the few remaining "Originals", and the newer recruits,

including many Military Service Act (MSA) men, ended their record of service by being ignominiously accompanied from place to place on their demobilization journey home by armed police escorts. Immediately following the Armistice, when discipline was at its most vulnerable, 7th CIB officers were called upon to lead by example. The battalion officers, who had always seen to the welfare of their men whilst in the trenches, out of the line or on operations, however, chose to turn their backs on their men. They took prolonged leaves and insisted on meaningless military ritual. Ultimately, they suffered the consequences of that betrayal. The Nivelles "mutiny" is a perfect example of how authoritarian control can never be an adequate substitute for the human dynamic of command known as leadership.



About the Author . . .

Lieutenant-Colonel Ian McCulloch joined the Canadian Forces in 1977 and has held various appointments in The Royal Canadian Regiment. He holds an honours degree in Journalism from Carleton University and a Master's of Arts in War Studies from the Royal Military College of Canada. Lieutenant-Colonel McCulloch has served on exchange with the 1st Battalion Royal Regiment of Fusiliers and as Commanding Officer of the Black Watch (Royal Highland Regiment) of Canada. An avid student of military history, Lieutenant-Colonel McCulloch's writings have been published in numerous journals and books and he has served as a historical consultant for the Arts and Entertainment Channel and the Canadian Broadcasting Corporation. He is currently Deputy Director of History and Heritage at National Defence Headquarters.

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- 41 *Ibid.*
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A SIMPLE TACTICAL PROBLEM

“MISSION ANALYSIS”

Tacitus

AIM

The purpose of the tactical problem is to force the reader to consider how they would solve the dilemma in combat. The problem is aimed at junior leaders of all ranks and all MOCs. The Combat Arms do not have a monopoly on tactical thinking. The problem is kept intentionally simple and free of superfluous detail. This is a thinking exercise and not a staff check.

As with all tactical problems, there is no “correct” answer but it will be obvious that some solutions will closely approach a hope for ideal, more so than others.

The first problem in the new series is deceptively simple and requires not so much a knowledge of tactics as it does an understanding of the new doctrine.

MISE EN SCÈNE

You are commanding the vanguard of an advancing force. Your orders tell you that there is no enemy to be expected on this side of the river. Your commander two levels up intends to cross the river to force the enemy to fight a conclusive engagement and is therefore pushing you and your commander to move quickly. Speed is paramount. (Diagram 1)

As you are advancing, a dispatch rider arrives with orders for you to seize the bridge immediately. You acknowledge the order, do a quick mission analysis, and give your own orders on the move.

As you approach the bridge you are ambushed. (Diagram 2) Although you successfully defeat your enemy your unit strength is now reduced by almost 70%. Your unit is only 30% of its original strength. You have no comms with your superior. (Diagram 3)

WHAT DO YOU DO?

Diagram 2

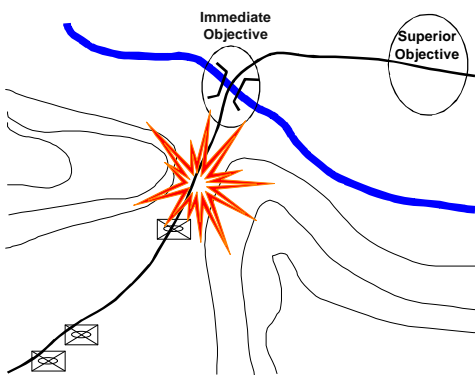
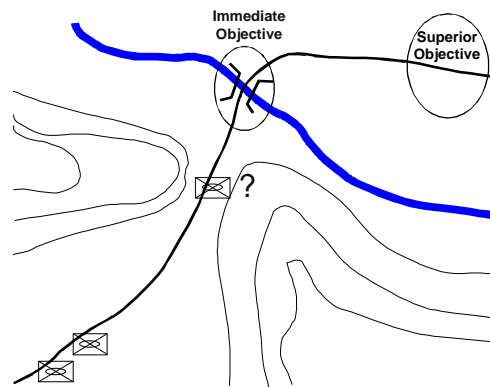


Diagram 3



THE STAND-UP TABLE

COMMENTARY, OPINION AND REBUTTAL

Commentary on “Leopards in Kosovo: The Solution for an Armoured Combat Vehicle” by Captain Don Senft, Vol. 3, No. 1, Spring 2000.

Mr David Rudd, Executive Director, The Canadian Institute of Strategic Studies, Toronto writes:

A DIRECT ROUTE TO DIRECT FIRE SUPPORT

Captain Don Senft’s comparison of the performance of the Leopard Main Battle Tank (MBT) in Kosovo to that of the Italian Centauro seems to validate the Army’s vision of fielding a medium-weight force—indeed, one with a tracked component. This begs the question of how to deal with the obsolescence of the Leopard C2 by decade’s end. Can the attributes of the tank force be replicated, knowing that the federal cabinet is unlikely to fund the purchase of even a second-hand MBT? Can the Leopard replacement be handled through an existing vehicle purchased off-the-shelf? If so, will the new combat vehicle fit in well with evolving policy, strategy and doctrine? How can the purchase be finessed through Treasury Board, when successive governments have been reluctant to re-capitalize the Canadian Forces traditional warfighting capabilities?

I shall not attempt to re-state the difficulties of force planning in a tight fiscal and threat-ambiguous environment. However some strategic political assumptions can be made. Canada’s tradition of voluntarism and widespread support for the new ‘human security’ agenda will ensure that we remain actively involved in international crisis management. How does this assumption provide direction for

defence policy? Put simply, it gives rise to the *1994 Defence White Paper* and the more recent *Strategy 2020*, which call for Canada to deploy sustainable, combat-capable forces in a timely manner to international trouble spots. Whether the mission is View 1 (warfighting) or View 2 (operations other than war) a further set of assumptions can be made. Strategic mobility, flexibility and sustainability will be paramount. Providing adequate numbers of properly trained and equipped personnel will require an assessment on how technology can be leveraged to compensate for any shortfalls in manpower. In addition, the theatres in which the Canadian army will be operating will likely be characterized by primitive or damaged infrastructure, and will cover a mix of rural and urban terrain. A high degree of tactical mobility will therefore be required. Furthermore, as many of the missions will be discretionary in nature (since they do not pose a threat to our national survival) the level of tolerance for Canadian casualties will be fairly low. Added to this, Canadian units will surely be operating in close proximity to combatants. These considerations will require adequate levels of protection against a variety of potential threats. The latter will range from rifle-toting irregular forces and machine-gun armed pick-up

trucks to more disciplined forces armed with a variety of first—and second—generation weapons. Although a firepower over-match capability would be desirable, ground forces should at least match the capabilities of the combatants so as to deter misbehaviour (an in the case of View 2 operations) or to support the infantry on its way to the objective (in View 1 operations).

I am not qualified to judge how Army should configure itself for the more numerous View 2 operations while maintaining at least a residual warfighting capability in order to fulfil Canada’s obligations under the UN Charter and Article 5 of the North Atlantic Treaty. How the armoured corps should re-capitalize itself adds another level of complexity to the puzzle, since the provision of direct-fire support is not simply and armoured issue, but rather an army issue. It is therefore with some hesitation that I, a mere member of the attentive public, approach the stand-up table. I beg the patience of the professionals who will read this piece, and draw their attention to the fact that I have no personal stake in the remedy I will prescribe.

When one examines Canada’s fiscal and political landscape, its foreign and defence policy objectives, and the requirements of contemporary operations, one could make a strong case for the retention of medium-weight, direct-fire support in Canada’s Army, rather than a transition to a light cavalry force. An examination of strategic and tactical requirements (illustrated by Captain

Senft's comparison of tracks and wheels) may further help us narrow the field in the search for a Leopard replacement. I suggest that the candidate which best fits the requirements outlined above is the M8 Armoured Gun System.

The M8 is essentially a light tank, originally conceived as a firepower enhancement for the otherwise lightly-armed US airborne/air assault divisions. Considered technically mature, the US Army cancelled the program in 1996, preferring to fund other priorities. Recently the vehicle has been offered as the direct-fire support vehicle for the US Army's Interim Brigade Combat Team (IBCT). This is all well and good, but what are its merits for Canada? Specifically, does it combine the strengths of the Leopard with those of the LAV III force with which it will be operating across the View 1/View 2 spectra?

MOBILITY

In its basic form (18 tonnes) the M8 possesses identical strategic mobility to the LAV III. Three M8s can be delivered by C-17 airlifter should the latter be the means of conveyance to the theatre of operations. Tactical air mobility is also similar. The M8 can not only roll on and off a C-130 Hercules with ease, but can be air-dropped as well. In terms of ground mobility, the LAV may enjoy an advantage in road speed (100km/h vs. 70km/h) but this is somewhat offset by the ability of the compact, tracked M8 to negotiate narrow streets and execute point turns, extricating itself from situations that a wheeled vehicle would find problematic. The M8 remains mobile in the face of poor weather conditions and marginal terrain—something that Captain Senft observed that the wheeled Centauros was not.¹ The point is not academic. As our political leaders—and an increasing number of vocal advocacy groups²—have shown a willingness

to dispatch the Army to places with poor or non-existent road systems and varying climates, the Army cannot afford to have its ground mobility restricted by its own vehicles! Let us also remember that superiority of tracked vehicles in negotiating both man-made obstacles and rubble found in urban conflict zones, and the immunity of their running gear to shell splinters and sniper fire.³

FIREPOWER

Although the M8's low-pressure 105-mm main gun is slightly less powerful than the Leopard's L-7 gun, it is identical to that proposed for the LAV-based armoured combat vehicle (ACV). It will perform adequately against first- and second-generation tanks, and with the installation of a through-the-barrel missile (TBM) capability, could provide a long-range capability against modern armour. Improvements over the Leopard C2 include provision for a second-generation thermal imager and a more reliable electric turret drive and gun stabilization system. The M8 may carry fewer 105mm rounds than either the MBT or the LAV III-based ACV, but the rate of fire of the M8's automatic loader is 12 rounds/minute versus 10 rounds/minute for the low profile turret (LPT) mounted on the LAV III.⁴

PROTECTION

The various levels of protection offered by the M8 are superior to those of the LAV, making the former a better platform with which to execute a range of combat and near-combat missions. Two modular armour packages are available. Level 2 provides protection against heavy machine-gun fire, bringing gross vehicle weight to 21 tonnes. At 23 tonnes gross weight, Level 3 offers protection against shoulder-fired anti-tank weapons. Because

scalable armour bestows a level of protection on M8 crews not available to LAV III crews, it is clear that an M8 would be better able to manoeuvre in the face of the enemy, thereby taking some of the heat off the infantry. The M8's excellent power-to-weight ratio suggests that further developments in modular armour and defensive aid suites (DAS) could easily be incorporated without significant loss in ground mobility. The fact that M8's smaller profile and growth potential results in a more acceptable level of operational risk suggest that the M8 combines the best of both worlds, wheeled and tracked.

FLEXIBILITY

One of the intangible advantages offered by armoured forces is their ability to dissuade combatants from either attacking each other or from interfering with the mandate of the intervention force. There is considerable anecdotal evidence that the presence of tanks in Bosnia and Kosovo has had this effect. It would therefore be worthwhile to ask whether the tracked M8 retains the authority of a medium/main battle tank to a greater degree than a LAV-based ACV.

As the majority of the Army's F-echelon will be LAV-based by 2003, it is worth asking if the adoption of a dissimilar vehicle for direct-fire support will impose significant logistical penalties. I suggest that this may not be an issue, since there does not seem to be any enthusiasm for a LAV III-based ACV. The latter's shortcomings in the area of crew protection were laid bare in the Operational Research Project *Quarré de Fer*.⁵ The notional LAV IV might redress this deficiency, however at 22-24 tonnes gross weight it will not possess the C-130 roll-on/roll-off capability of the M8.⁶

Captain Senft alludes to the ability of the Leopard to mount a mineplow or roller. With the retirement of Leopard C2 the Army may forfeit the ability to engage in combat counter-mine operations. This may not be a show-stopper since, according to the Army's own vision, the land force, while capable of warfighting, will not necessarily be asked to do so under all conceivable circumstances. Certainly, alternate approaches to the mobility/counter-mobility challenge could be explored. In the meantime, further rationalization of the vehicle fleet could be undertaken. Since the M8 can be recovered by Bison maintenance and recovery vehicle⁷, planners can consider whether to retire the Taurus ARV.

Admittedly, crew size may be a factor. With only three crew members the M8 may not be the ideal platform with which to establish vehicle check points. In addition, the complexity of modern tanks has meant that at least four crew members are considered necessary to perform basic field maintenance on their vehicles. These issues must be weighed against the advantages of replacing (expensive) personnel with (relatively inexpensive) technology. Over the lifespan of the vehicle it is very likely that savings will be realized by replacing the fourth crew member with an automatic loader. Lower manpower requirements will help ensure that the armoured regiments have no trouble remaining at full strength. Moreover, personnel freed up from loading duties could be used to fill out any vacancies in infantry or reconnaissance units.⁸

CONCLUSION

My intention is not to re-ignite the age-old 'wheels versus tracks' debate, but rather to determine whether strategic outlook, policy objectives (and constraints), operational experience, and equipment options

can be brought into sync. As current policy calls for the organization, maintenance and deployment of medium-weight forces with good strategic and tactical agility, protection for troops and adequate firepower, all at reasonable costs to the defence budget, the Canadian army could do much worse than adopt the M8 as its new ACV. The M8 combines many of the attributes of the Leopard C2 and the proposed LAV-based ACV, but is superior to both in key areas. As a 'light tank', the M8 does not come with the negative political baggage that policy-makers associate with the MBT.⁹ Indeed, the relevance of the M8 to the more numerous (and human security-centric) View 2 missions may help deflect any criticism that the Army's priorities lie exclusively with warfighting. This in turn may help facilitate its purchase.

The M8 represents a technically mature, off-the-shelf solution which

satisfies most of the armoured corps' needs, as identified in Captain Senft's article. It also may represent an improvement over the notional LAV-based ACV which was evaluated in *Quarré de Fer*. It could be bought as a *quid pro quo* for US Army selection of the LAV III as the baseline vehicle for its Interim Brigade Combat Teams. Should the M8 go into production for US forces, Canada could place an order at the same time. This would have two immediate benefits: it would allow Canada to take advantage of the economies of scale which accompany larger orders, and it would enhance inter-operability with our most important ally—another objective of *Strategy 2020*. Clearly, this option should be thoroughly explored and costed out before any decision is made on where the armoured corps will fit into the Future Army¹⁰.



ENDNOTES

- 1 I acknowledge that the Centauro's inability to lower its ground pressure through a central tire inflation system—something the LAV-based ACV can do - may have been a factor here.
- 2 Even opponents of Canada's traditional warfighting commitments—such as former UN Ambassador Steven Lewis—have called for humanitarian intervention “backed up by Western firepower.”
- 3 Spanish wheeled APCs serving with UNPROFOR in Bosnia came under frequent sniper attack, resulting in 80 tires being punctured in a 72-hour period. In Panama in 1989, US wheeled vehicles encountered similar problems to which run-flat inserts provided only a partial solution. See Letters to the Editor, *International Defense Review*, March 1993, p. 238.
- 4 *Janes' Armour and Artillery 1999-2000*.
- 5 P.R.S. Bender et al, *Quarré de Fer*, “Analysis of the ACV in Warfighting Tasks”. Ottawa: Operational Research Division, DND, 1998.
- 6 *International Defense Review*, April 2000, p. 29.
- 7 In tests in the US, the Bison MRV recovered a 60-tonne M88 armoured recovery vehicle. See Martin Shadwick, Upgrade Update, *Canadian Defence Quarterly*, Vol. 27 No. 2, p. 30.
- 8 Recall that the move from Lynx to Coyote increased the manning requirements of recce vehicles. For a review of manpower shortages in infantry units see Capt. R.J. Fowler, “Millennium Woes”, *The Army Doctrine and Training Bulletin*, Vol. 3 No. 1, p. 83.
- 9 I refer to the “no tanks” memos issued by the Prime Minister's Office during the Trudeau years. See Gerald Porter, *In Retreat: The Canadian Forces In the Trudeau Years*. Toronto: Deneau & Greenberg, 1979, pp. 155-156.
- 10 The manufacturer, United Defense LP, claims that the M8's fuel and maintenance costs are US\$0.65/km and US\$35/km, respectively. See *Janes Armour and Artillery 1999-2000*, p. 164.

Commentary on “Armour at the Crossroads” by Lieutenant-Colonel C.M. Fletcher, Vol. 3, No. 1, Spring 2000.

Captain Paul Gillies, J3 Coord 2 at the Joint Operations Group Headquarters in Kingston writes...

Let me begin by stating how much I agree with Lieutenant-Colonel Fletcher's comments on the unsuitability of the Armoured Combat Vehicle (ACV) for the Canadian Army. Having also read Captain Don Senft's article¹ on the use of Leopards in Kosovo in the same edition of the Bulletin, the value of a tank versus an armoured car seems readily apparent. During peace support operations, the flexibility and intimidation created by a tank far outweighs any loss of operational mobility that it incurs *vis-à-vis* an armoured car. In a medium- or high-intensity scenario, the increased armoured protection and tactical mobility (in addition to the firepower advantage should we ever purchase something with a 120mm gun) that a tank brings to the table is vital to the success and survival of our combined arms team. Nowhere in our doctrine do we ever call for acquisition or use of an armoured car. Its advent at this point in time can only be seen as a result of military-political-industrial connivance to maintain production lines even at the expense of doctrine and capability. Minimizing the Armoured Corps maintenance liability while maximizing its commonality should also be an ongoing goal. Lastly, Lieutenant-Colonel Fletcher's desire to see greater incorporation of the Reserves into the Total Armoured Corps is also commendable. The units of the Reserve Force offer a ready pool of junior soldiers and officers that can be tapped to augment Regular Force units in preparation for operational deployments.

But this is where our agreement ends. My belief is that, more by accident than by design, the Armoured Corps has wandered into a suitable and sustainable structure within its Regular Force regiments. It would appear that our government is going to continue to commit the Canadian military into peace support operations around the globe. Most of these lie closer to peacekeeping than peace-enforcement and will continue to require a surveillance vehicle like the Coyote more than they do a tank. With each brigade group expected to conduct two consecutive rotations, the respective armoured regiment in each of these brigades should consist of at least two Coyote squadrons (preferably both with the surveillance suite). As for their internal structure, Lieutenant Chris Hunt's article², also in the same edition of the Bulletin, addresses this topic stating that the current five-car *recce* troops are just too small. But rather than add two more expensive *surveillance* vehicles, the solution might be to add two, less expensive *reconnaissance* vehicles, perhaps in the form of Light Utility Vehicles with sufficient personnel to conduct limited dismounted operations.

There will be times, though, when heavier armour is required for both intimidation and any anticipated fighting. This is the job of the tank.

But how many tanks does Canada's Army need? Under Operation SABRE, the Army has to be prepared to commit up to a mechanized brigade group, including

a four-squadron tank regiment. As it stands now, there are three of these squadrons in existence with enough cadre and equipment across the Corps to form the fourth, though it would drain the nation of any further tanks and crew. This ad-hoc regiment is supposed to have 90 days in which to reach its desired training level. Given that it will have squadrons from four different entities this may not seem like a lot of time. Fortunately, the three infantry battalions forming the brigade will probably also come from across the Army, permitting existing affiliations to stand and avoiding the lengthy process of starting armoured-infantry integration from scratch. Though some concession for the deployment of an entire tank regiment must be made, it should also be acknowledged that this is the least likely situation to occur.

A more likely scenario would see the early introduction of a tank squadron as part of an infantry battle group in order to make/enforce peace *à la* Kosovo. In most cases, this requirement will not exceed the initial six-month tour and, as the likelihood of hostilities diminishes, this squadron can be reduced in stages to half-squadron and even troop size, both easily sustainable in the long term. Lengthier deployments of full squadrons might necessitate the re-training and re-structuring of squadrons as advised by Lieutenant-Colonel Fletcher. And while we're on the topic of training, the pre-deployment of two squadrons worth of tanks in the West so that the occasional armoured battle group could be formed and practiced would be a step in the right direction.

What, then, becomes the role of reserve armoured units? The days of full-scale mobilization are gone. What the Army needs most from the Militia

is individual up to platoon-size reinforcement and replacement. For the Armoured Corps, this means the continued use of reservists on operational deployments to augment its under-strength regular sub-units and units. The only problem lies in what roles to assign them. Casting them the Cougar, even in the interim, is definitely not the route to follow for all the reasons outlined in Lieutenant-Colonel Fletcher's article. On the other hand, the Coyote (even in its Direct Fire Support Vehicle (DFS) version) and the Leopard tank are very complicated systems, and training reservists to fully operate and maintain these vehicles is probably asking too much. One idea would be to employ reservists in manning the reconnaissance patrol attached to each Coyote troop, as mentioned above. Alternatively, reservists could be trained to fulfill specific roles (gunner, driver, observer or echelon crewman) supported with simulators located in the armouries and, therefore, easily accessible. Exercises would be scheduled around their concentration periods (spring break and late

summer) so that they could be available to augment the regular units and gain further experience. Qualifications would remain the same as those in the Regular Force and all officers would be expected to complete Phase IV Coyote or Tank troop leading courses, though perhaps in segments spread over a longer period of time. Though these roles appear less glamorous than those currently held to, they would provide a closer bond between regular and reserve units, and permit the former to concentrate on the development of trained cadres while the latter concentrates on providing the muscle to make it work.

In conclusion, I agree with Lieutenant-Colonel Fletcher that the Coyote and the tank are the way ahead for the Canadian Armoured Corps. But whereas he sees the tank as the main focus, I see the Coyote, backed up by tanks when necessary, as the structure most likely to be both fiscally and politically workable. Thus, armoured regiments formed with two Coyote and one tank squadron are perfectly sufficient

given the Army's present and future roles. In addition to this, I believe that the Cougar should be removed from the Reserve Force as quickly as possible but would prefer to see their training focussed more narrowly onto providing trained augmentees for reduced strength regular units. In this way, both components would have attainable and sustainable goals that would draw us closer together rather than further apart.



ENDNOTES

1 Captain Don Senft. "Leopards in Kosovo—The Solution for an Armoured Combat Vehicle?", *The Army Doctrine and Training Bulletin*, Vol. 3, No. 1, Spring 2000.

2 Lieutenant Chris Hunt. "Observations and Lessons from Reconnaissance Squadron, Lord Strathcona's Horse (Royal Canadians), *The Army Doctrine and Training Bulletin*, Vol. 3, No. 1, Spring 2000.

Commentary on "Doctrine and Canada's Army—Seduction by Foreign Dogma: Coming to Terms with Who We Are" by Lieutenant Colonel R.J. Jarymowycz, Vol. 2, No. 3, August 1999.

Lieutenant-Colonel Paul Philcox of the Canadian Forces Liaison Council writes...

I very much enjoyed Lieutenant-Colonel Jarymowycz's article in *The Army Doctrine and Training Bulletin* and quite agree with what he had to say. Unfortunately, I think that his writings are on a level above what about 90% of the officer's of today's Army will comprehend (through no fault of their own) and the remaining 10% comprehending the idea will no doubt poo-poo it just for the sake of being ornery.

Having vented, here is my perspective on Lieutenant-Colonel Jarymowycz's theory.

I can recall that in the early eighties, while on a squadron commander's course in Gagetown, I was on deck for the next go around, and as I sat in the turret of my tank, the combat team was deployed astride Lawfield Road, facing south. I awaited my orders, and in my mind kept running through all the different scenarios the Directing Staff

might throw at me, all, of course, were fixated on advancing south.

When the radio orders finally came through, I was informed the Otnabog bridge on the Lawfield Road, about 10 km north of my position, had been captured by airborne forces and my orders were to re-take it immediately. I did a quick combat appreciation (old speak for estimate), made my plan and gave radio orders. Within 29 minutes, I had turned the combat team around 180° put in a classic right flanking and re-taken the bridge. The Directing Staff were somewhat impressed, but criticized me for not being bold enough to just charge up the road, do a frontal and be done with it.

That is a bit of a long story, but it is my best example of *tactical manoeuvre*. One that was no doubt a special case since it actually allowed for a flanking attack. Lieutenant-Colonel Jarymowycz's and my point is that anyone who actually served in 4 Canadian Mechanized Brigade Group would certainly know you couldn't pull off a "tactical manoeuvre like that against a Warsaw Pact forward edge of the battle area and get away with it.

So, he is quite right in saying all attacks are frontal in one way or another, and this is certainly true at the higher levels.

My concept of *operational manoeuvre* is probably pure Air-Land Battle 2000 stuff. At the divisional level, one or two brigades hold while one or two go deep. Why exhaust yourself on the enemy hard boys up front, when you can get in behind and cut up his supply lines and command and control. The only problem is making it happen. I like the theory; it makes sense to me, but it is damned hard to pull off. (The secret of course, is aggressive reconnaissance)

Lieutenant-General Franks
(commanding a US Corps in the Gulf

War) had a golden opportunity in Iraq to really prove this works, but he too played safe, for whatever reasons, and now we will never know what it would have looked like in real life.

Our problem in Canada is that we no longer have a functioning army. We may be lucky to have a brigade level exercise once every ten years. There are no officers left who remember training in Germany and what it was like to work with real armies. They have no concept of the time, space or real estate requirements that corps and divisions take up. In contrast, we now work in a military kindergarten.

So if we cannot practice, we must study our history, as Lieutenant-Colonel Jarymowycz says, learn from what we did in both world wars. It is all too easy to adopt the "flavour of the month doctrine" from some glitzy foreign army, but that don't mean it will work here.

I do not think we will see any opportunities for Canada alone or Canada as part of a Western Coalition to put any of these theories into practice in the next generation or so (30 years?). I also think, that by that time, the Revolution in Military Affairs will have

rendered the tank and many other weapons systems senile. Will this mean that the doctrine changes? I think only by degree. As Lieutenant-Colonel Jarymowycz says "manoeuvre is a state of mind". The truism is that you must find, fix and destroy the enemy. To do that you must be mobile—and in the words of the cowboy cardsharp, "know when to stand, know when to show 'em and know when to fold 'em".

Any idea, especially those involving doctrine, which is taken to extremes, will fail in the end. *Attritionists* proved that in the First World War and I think *Israeli manoeuvrists* proved it in the 1973 Arab-Israeli War.

The all arms team, working together will always win out in the end, if its doctrine is based on mobility, flexibility, shock action and firepower. It is just that simple.



Commentary on "Time to Fight a Smarter Enemy" by Lieutenant-Colonel Chuck Oliviero (Ret'd), Vol. 3, No. 1, Spring 2000.

Captain Raymond Farell, a Student with the Land Force Technical Staff Programme (2000/2001) writes...

Kudos to Lieutenant-Colonel Oliviero (Retd) for his comments ("Time to Fight a Smarter Enemy"). We should indeed equip our enemy force commanders with some more formidable doctrine, and current Canadian doctrine is probably the best choice. Not only do we all understand it, but it is probably pretty good. I say probably because we have not really tested or refined it, but allowing the bad guys to use it against us ought to double our learning curve.

I must further applaud Lieutenant-Colonel Oliviero (Retd) for his comments regarding the value of challenging opponents and learning from mistakes. From chess to tennis, it is a truism that the best way to learn competitive skill is to play against someone just a bit better than oneself. Why then, in all our exercises, do the Canadians always win? In some fifteen years in the Army, I have yet to see an exercise in which the *blue force* really

loses. Force-on-force free play exercises permit this in theory, but most of our field training exercises and computer assisted exercises are not free play. It goes without saying that no scripted exercise ever results in a *blue* defeat although many commander have had to deal with the real thing. Even when our exercises are free-play (albeit nominally), we rarely allow the *red forces* complete freedom and we usually re-constitute *blue* after a setback. Somehow we always win in the end.

Is this helpful? It has been suggested that nobody should have to face in battle what they have not faced in training. Well, the very worst thing a force can ever face is defeat, so let's

start facing it in training. The commander who can coolly react to crumbling units, failed plans and panicked subordinates can deal with anything. By never losing, we are papering over the weaknesses in our doctrine and tactics, and denying our commanders the opportunity to learn from defeat.

I suggest that we should start designing more of our exercises so that *red* wins—ideally at least half of the time. True free play is the best way to

allow this since there is always a real winner and a real loser, but even scripted exercises would benefit from *blue* defeat once in a while. With this in mind, I take heart from the climate of self-criticism which is in vogue lately, and from the increasing use of computer assisted exercises and MILES type equipment—both of which tend to make either force pay for its mistakes. Nevertheless, as long as exercises are designed to ensure *blue* victory, we will never get the full benefits of our high-tech tools or our training.

History is full of victorious armies that have forged in the trauma of earlier defeats. On the other hand, hubris and complacency have doomed more than a few. Facing periodic defeat in training will reduce the likelihood that our soldiers must face it in battle. Besides—it makes the hard-earned victory sweeter.



Commentary on the Infantry.

Major John Spence of the Directorate of Army Training writes...

Recently I was ‘set-up’ as a friend asked, “what kind of person will we need in the infantry”? Before I could answer someone else jumped in with “the dictionary definition of an ‘Infanteer’ is GRUNT—government reject unfit for normal training”. Yes, they provide a lot of “yucks” these guys. However, I have read a lot of material lately about the wizardry of the future battlefield and the high-tech soldiers of tomorrow. I’m concerned about the perception that the infanteer is someone at the bottom of the technological/academic ladder.

If the views of what our work place may look like are accurate, I thought I’d better sit down and determine what it is that I would require of a future infantry recruit.

I started by looking at the tool we give them for the job. It’s made of the highest quality steels and poly-carbon material man can produce, machined to tolerances measured in microns. Inside which, a precise chemical reaction designed to create an immense force must occur under controlled conditions. We see physics in play as the expanding

gases launch a tiny projectile at thousands of metres/second, which in turn must be guided over hundreds of metres to hit an object that is trying its hardest not to be hit.

Though we select a somewhat fragile transporter to move this tool about the battlefield, it contains the most advanced super-computing device known to mankind, the human brain (we just have to ensure that it’s the up-graded version). We then place the transporter and tool in any one of the numerous inhospitable natural environments Mother Nature can create; often adding some of the nastiest tricks and cruelties mankind can devise. Here we demand the problems encountered be overcome with intelligence and courage, tempered by integrity and humanity. (Failure in this occupation is an undesirable option.)

No, I haven’t forgotten the other tasks we want accomplished; after all there are too many to ignore. But when the vehicle doesn’t work, or there are no large shells to load, or the communications equipment is unserviceable, everybody falls back

to the basics i.e. a soldier with a rifle and a bayonet taking or holding ground. Which, to use some business vernacular, is the core competency of an army.

So, while I may not require the epitome of a techno-geek, I will need a soldier who has an ability to blend an understanding of the hard sciences such as mechanical engineering, chemistry and physics with the social sciences and humanities. As there is no one stop educational institute from which to draw a recruit meeting all requirements, the Army must be prepared to encourage and assist a soldier in achieving the desired end-state.

P.S. I was asked how all of the above effects the reserves. A reserve force should be seen as a place for the strategic pre-positioning of the skills, traits and knowledge I’ve talked about. The failing to do so correctly will cause a detrimental crack in every facet of the Army.



Our readers have submitted for consideration the following opinions:

Captain J.L. Binns of Princess Patricia's Canadian Light Infantry writes...

RESERVE RESTRUCTURE—A VIEW FROM THE FIELD

As the Army restructure slowly grinds along it might be useful to look at how a militia "teeth arms" rationalization might occur that would actually increase the fighting effectiveness of the Army rather than decrease it as every other reorganization has since the Korean War. The aim of a reorganization should be to increase the combat power of the Army. After an estimate free of regimental and corps biases the Regular Army could look far different from its present form. There are a number of major issues to resolve: To what extent can mobilization be reasonably envisaged? What is the place of mass parachuting? Who crews LAV III? What is the role of light infantry? What is the replacement for the Leopard? What is the role and nature of aviation in the Army?

Regardless of the eventual Regular structure the best course for the Militia would be to reorganize into units of around 800 all ranks with the correct rank structure. These units must be capable of fielding formed sub-units for scheduled operations given a reasonable amount of warning time or for deployment of the entire unit in the case of a national emergency. This structure would compliment the Regular Army while optimizing the opportunity to develop senior leadership and unit cohesion.

It is vital for the long-term defence of the country to at least maintain the current number of Reserve combat arms soldiers. Across NATO our allies are having difficulty recruiting infanteers. Both the British and Americans have resorted to bounties to attract recruits. Canada's Army currently does not have the means to offer a compensation package that will recruit large numbers of highly motivated and well-educated soldiers to operate high tech weapons. In addition, the infantry will probably soon lose mass parachuting as an attraction and the pool of Regular infantry applicants will continue to dwindle. The Militia will continue to be the primary source of highly educated combat arms soldiers.

The single largest cost in operating a Reserve unit is Regular Support Staff (RSS) personnel costs. Any reorganization aimed

at significantly cutting Reserve costs must reduce the number of RSS staff. A restructure plan that whittles away at unit Class A budgets will not save what the restructure will cost. We will waste money. The true savings are in reduction of brigade headquarters, Militia Training Support Centre staff and RSS. The vast majority of full time staff should be reservists. The minimum savings to be had by replacing regulars with reservists would be 15% before posting and pension costs are factored in. In addition, all monies normally paid to the incumbents on Class A and other Class B service would also be saved. To save this money, approximately \$5 million annually just in pay, the positions saved would have to be removed totally from the system. The regular infantry alone would be required to give up around 102 captains and warrant officers; a tough sell.

I believe that infantry and armour restructure must be looked at together as the foreseeable requirement for infantry is only in the mechanized role. The coming of LAV III makes it likely that all Regular units will be mechanized and that the Armoured Corps is unlikely to receive new main battle tanks. The cost of the Coyote makes it unlikely that they will be issued to the Reserve. Specialized Reserve Force light infantry, for example a parachute battalion group, despite the utility of such a capability, is not "sellable". The Regular Army will not accept that one could be a paratrooper in the Militia, but not in the Regular Force—likewise for special forces, high mountain operations, combat search and rescue or long range patrolling.

The new Militia structure should consist of four brigades, one in each land force area. The manoeuvre elements of each brigade would consist of two or three mechanized battle groups, a reconnaissance (recce) squadron and a direct fire support (DFS) squadron. The DFS squadrons would ideally be equipped in the future with a heavy armoured car such as Rooikat. The F Echelon of each battle group would consist of mechanized infantry, infantry combat support platoons, close support engineers, an armoured recce troop and an

APC squadron. A number of armoured regiments would convert to APC squadrons equipped with enough Bisons to carry two rifle companies and battle group command post. Current engineer units would be amalgamated to provide an integral close support squadron for each battle group. Mortar platoons, assault pioneers and infantry recce platoons specializing in long range recce patrols and sniping would also be integral to the battle group. As is the custom in Stabilization Force battle groups everyone would retain their cap badge. The total vehicle count for this proposal is 367 Bison variants and 183 recce/DFS vehicles.

A generation of Militia commanders would soon be experienced in leading combined arms teams. Formed into permanent battle groups commanded by a lieutenant-colonel, these units could be then tasked to provide assault troops or rifle companies for operations as required.

The training progression of officers would be expanded to include a combat team commander's course for infantry, engineer and armoured officers. The RESO programme for infantry officers would include Phase 4. A course aimed at senior captains and majors, designed to "train the trainers", should be created to develop higher standards of TEWTs, command post exercises, field firing, Janus and cloth model exercises. Vacancies, and funding from the Army, would be required for advanced specialist training at the Combat Training Centre for officers, warrant officers and NCOs.

The restructuring of the Militia can occur with less friction than has been encountered if it is clear that the purpose is to increase the combat power of the Army, increase Reserve participation in operations and provide individual militia soldiers with better opportunities for training. These improvements both in individual training and equipment must be manifested before reorganization to prove that the Army is truly serious about increasing fighting power. If restructure is simply to save cash in the short term by cutting training and re-rolling combat units into service support labour gangs, then willing cooperation from the Militia is unlikely.

